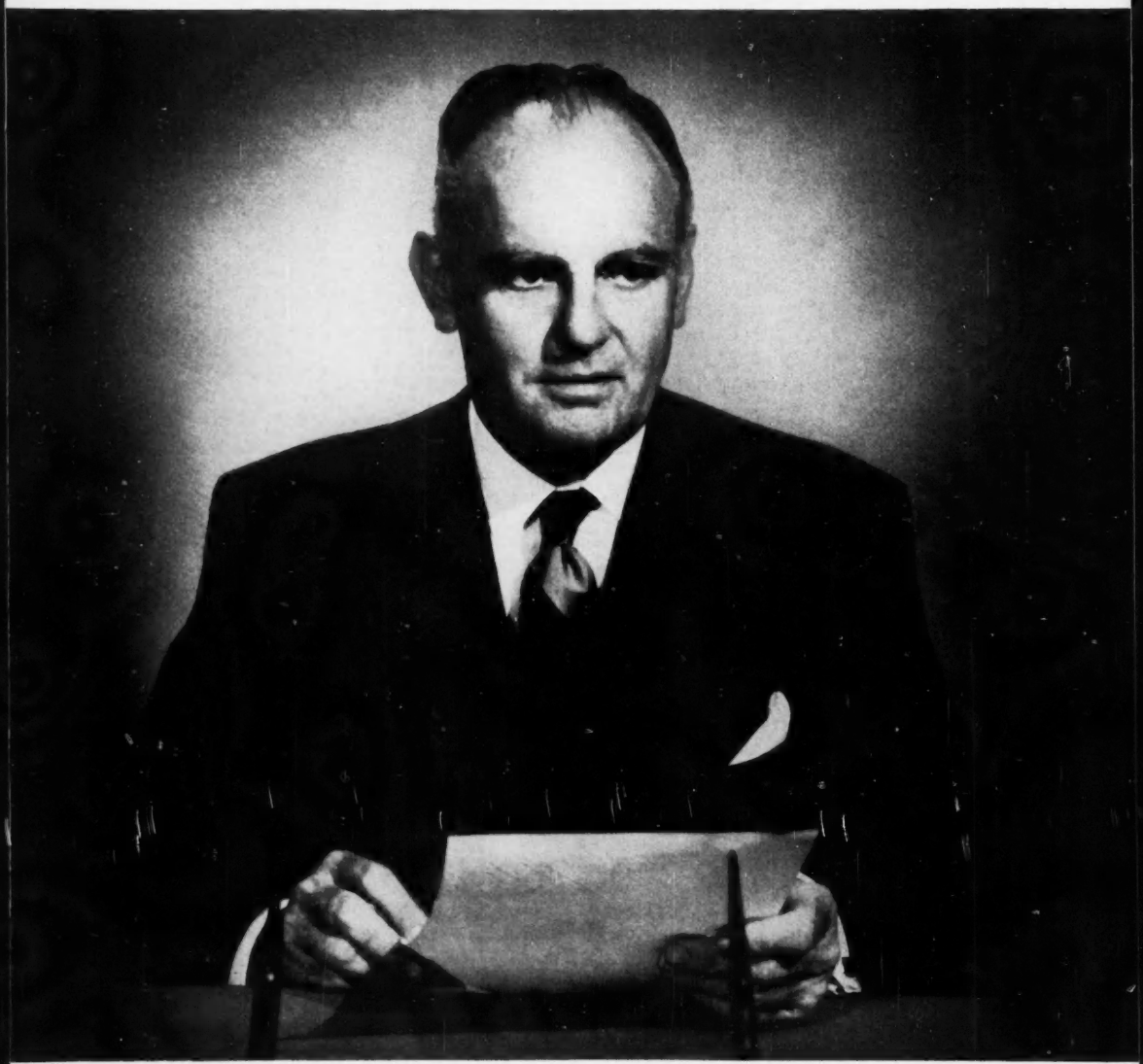
FEBRUARY 19, 1951 NEWS ISSUE

Electrical World

A McGRAW-HILL PUBLICATION



J. Wesley McAfee, President of Electric Energy, Inc

The Industry in Pictures.....Page 16

You Can't Keep Construction Down.....Page 30

First major fluorescent street lighting system in U. S. A.—a section of Wyoming Avenue, Detroit, showing exceptional uniformity of illumination secured with new fixtures.

STREET SCENE 1951

Mr. Louis J. Schrenk, Detroit Lighting Commission Superintendent, with one of the new V-shaped fixtures. Each fixture contains 2 pairs of 96-inch fluorescent lamps protected by clear plastic windows.

Single-arm fluorescent street lighting fixture, showing installation on pole. This design is an alternative to the V-type selected for Detroit.

Is Detroit's Test of Fluorescent Street Lighting the Start of a New Trend?

Right now, no one knows the answer. But the city of Detroit, with the nation's first major fluorescent street lighting system, will soon have comparative data on installation, operating and maintenance costs. When these are properly evaluated, it may be that street lighting will enter upon a new era of development.

Illuminating a half-mile stretch of Wyoming Avenue, one of the city's main traffic arteries, the new system uses 24 eight-foot-long tubular fixtures designed and built by General Electric. The fixtures give a bright, virtually **glareless light. Preliminary reports are that illumination on the street surface is extremely uniform and provides excellent visibility, especially on wet or icy pavements, when the visibility far exceeds conventional lighting.**

"No other city has a better record for accident prevention," **says Mr. Louis J. Schrenk, Superintendent of the Detroit Public Lighting Commission.** *"We picked fluorescents because, with their long light source, they give such excellent results on highly specular pavements—and in addition, these fluorescents give us the required lumens with much less energy consumption."*

Electric utilities will watch with interest the reports on this new departure in street lighting. It's another example of forward thinking based on General Electric research and development. Apparatus Dept., Schenectady 5, N. Y.

MORE POWER TO AMERICA

GENERAL ELECTRIC

301-151

The Electrical Week

IN WASHINGTON—Power agencies of the Department of Interior marketed 24.1 billion kwhr with revenues of $59.8 million in the fiscal year ended last June 30 (p 11) . . . An interconnection between the Bureau of Reclamation's Central Valley (Calif.) power system and BPA lines in southern Oregon highlights the Bureau's transmission-line construction plans for fiscal '52 (p 12) . . . Coming of the Controlled Materials Plan has been placed on a definite schedule by Washington's mobilizers (p 14) . . . A list of M orders of interest to the industry with a brief description is given on p 14 . . . And FPC reports that coal consumption by electric utility power plants during 1950 was 9.4% above the 1949 use (p 19).

ELSEWHERE—In five years of independent operation the Florida Power Corp has more than proven itself (p 4) . . . Opposition to Interior's program for connecting Pacific Northwest and California federal power lines has developed in the area served by BPA (p 6) . . . William A. Roberts, an executive vice president of Allis-Chalmers Manufacturing Co, has been elected president (p 11) . . . Sheared pins on the intake screen drive of the Kansas City, Kan., municipal plant resulted in total system interruption of 30 to 90 minutes on Jan. 30 (p 12) . . . Data, decision, coordination, and policy are the requisites to optimum operation of interconnected systems, the Systems Operation Committee of PEA was told at a meeting at Newark Feb. 8-9 (p 13) . . . And despite talk about restrictions, the construction boom is rolling merrily on (p 30).

• • •

Prospects for the St. Lawrence seaway and power project appear to be about the brightest in the long, controversial history of the scheme. One thing's certain: If Congress doesn't approve it this season, it won't be for lack of White House support. President Truman has had several meetings with Congressional leaders to urge action.

Washington now hears that plans to move agencies such as FPC, SEC, and Reclamation out of the capital "for the duration" have been put back on the shelf for the time being.

EW's capsule course in logic—The nation needs more electricity for its industries and to increase further its standard of living. To make more electricity generating capacity must be increased. To increase generating capacity utilities must get generators. To make generators manufacturers must have copper. Therefore, manufacturers will get copper or the nation won't get more electricity. And logic is logic.

Federal power has reared an ugly head in a scrap among naturalists and conservationists. Some leaders of groups in those fields claim that Newton B. Drury, director of the National Park Service for a decade, was shoved out by Interior Secretary Chapman because of the Park Service's fight against Reclamation power projects in the Dinosaur National Monument. Chapman ruled in favor of power projects for the park area on the Colorado-Utah line. Drury has confirmed only that he was asked to resign.

Mount Dora, Fla., has started a campaign to become the third city in the nation to replace garbage pails with electric garbage disposers. The city is buying the disposers and selling them direct to the citizens; however, purchase is voluntary. Jasper, Ind., and Herrin, Ill., pioneered in this field.

If utility sales managers were unionized, they would probably demand free psychiatric treatments in their next contract. Just when they were getting ready to start big sales campaigns the Korean fighting started. Now many will have to demobilize their sales staffs because appliances will be so scarce that selling won't be a problem. It's frustrations such as these that drive sales managers balmy.

At the recent International Engineering Conference at New Delhi, India, only delegates from Norway, Sweden, and the United States would give exact figures on the number of farms electrified in their countries. All other delegates talked in generalities.

Notes From The News

Cleveland Electric Illuminating Co has offered $805,000 for the Berea, Ohio, municipal light plant. It was the only bid received by the city. An injunction to bar the sale, asked by two Berea taxpayers, has been denied in Common Pleas Court, but the decision will be appealed . . . William P. Hunsdorf, Cleveland inventor, has perfected a fully automatic armature winding machine for small motors and generators. The machine can complete an armature winding once every 20 seconds. By hand it takes seven minutes . . . Oklahoma Gas & Electric Co is using television shorts to tell the company's story with department heads doing the talking.

Florida Power Independent 5 Years

Former General Gas & Electric Co Subsidiary Progresses Rapidly; Area Promotion Builds Industrial Load, and All Revenues Increase

In December 1945 the General Gas & Electric Co distributed its holdings in the Florida Power Corp to its stockholders. The St. Petersburg utility became an independent company with its common in the hands of the public. The big question then was "What will happen to Florida Power?"

Five years of independent operation have provided the answer:

"Florida Power Corp is expanding rapidly, is providing better electric service to more customers, is financially sound, and is increasing its net income each year."

Georgia P&L Co Is a Subsidiary

The statistics in the table on this page show what happened since 1945. These data are for the system. Florida Power owns and operates a subsidiary company, Georgia Power & Light Co, with headquarters at Valdosta, Ga. This company has an average of 25,000 customers serving only a small rural area in southwest Georgia.

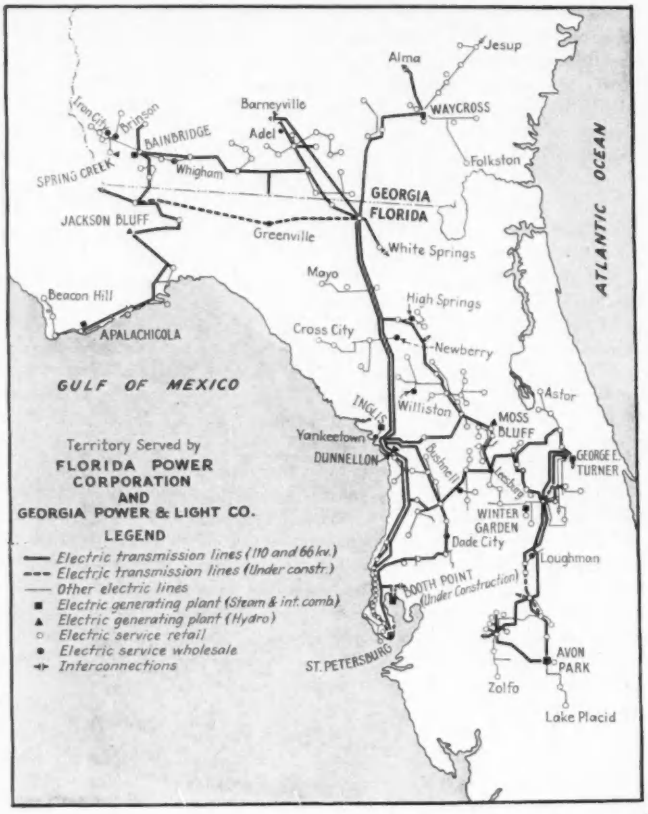
Behind the big increase in the business of the company is the story of constant promotion. A. W. Higgins, who retired as president in 1950 at the age of 70, was a great believer in promotion. His successor, W. C. Gilman, head of a New York consulting engineering firm, also believes that a utility company must employ promotion to make progress.

Higgins Favored Area Promotion

Back in 1945 Higgins saw that if his company were to succeed as an independent it would have to promote the area which it served. He also was willing to use Hollywood methods (however distasteful they might be to a Floridan) if they promised success. The 213% increase in industrial revenue since 1945 is proof that Florida Power has improved its business at the point where it was weakest.

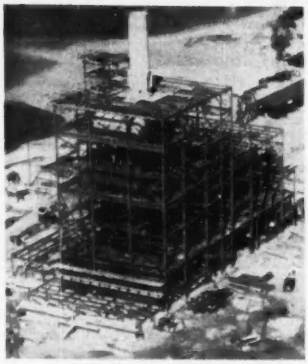
This gain was brought about by steady work and promotion. In 1946 the company employed its first full-time industrial engineer to work with large industrial customers. He got Victor Chemicals, makers of elemental phosphorous, to locate in company territory. President Higgins induced the National Research Corp of Boston to erect a pilot plant to concentrate Florida orange juice. Success marked the project which has grown into a $125 million statewide industry.

In 1947 International Minerals & Chemical Corp was encouraged to enlarge its phosphate operations. The



How Florida Power Corp Progressed from 1945 to 1950

Item	1945	1950	% Increase
Fixed capital	$42,031,860	$80,459,585	91
Generating capacity	113,621 kw	180,371 kw	59
Transmission & distribution lines	7,492 mi	10,081 mi	35
Meters	112,882	209,949	86
Residential revenue	$3,817,953	$7,889,870	107
Commercial revenue	$2,351,423	$5,309,191	126
Industrial revenue	$1,631,630	$5,113,150	213
Employees	1,068	1,448	36



BOOTH POINT PLANT of Florida Power Corp has reached the stage shown in this airview. Twin and triplet buildings will be added in '52 and '53 respectively in order to house two additional units

Statistical Review of Florida Power's Last Five Years

Year Ended Dec. 31	Operating Revenues	Operating Expenses and Maintenance	Depreciation	Taxes
1946	$10,598,233	$5,957,285	$979,890	$1,930,717
1947	13,290,574	7,836,430	1,055,496	1,661,490
1948	18,396,344	11,654,000	1,154,634	2,357,185
1949	18,359,769	10,479,683	1,406,362	2,652,346
1950	21,178,153	12,629,776	1,631,700	3,063,450

Year Ended Dec. 31	Other Income	Gross Income	Income Deductions	Balance for Dividends and Surplus
1946	$197,075	$2,627,416	$876,515	$1,750,901
1947	97,204	2,834,362	874,829	1,959,532
1948	6,668	3,237,193	1,013,223	2,223,970
1949	4,352	3,825,730	1,195,808	2,629,922
1950	18,437	3,871,664	1,137,829	2,733,835

Year Ended Dec. 31	Electric Customers	Million Kwhr Electric Energy Generated and Purchased	Average Kwhr per Residential Customer	Average Revenue per Residential Kwhr
1946	96,699	639	1,555	3.21¢
1947	109,865	819	1,722	3.07¢
1948	124,305	1,093	1,837	3.96¢
1949	136,196	1,165	1,951	3.14¢
1950	148,620	1,401	2,106	3.01¢

Year Ended Dec. 31	Electric Plant	Stockholder Equity (Total of Common and Preferred)	Long Term Debt
1946	$46,979,828	$15,466,869	$26,111,449
1947	53,887,293	17,467,930	26,824,043
1948	60,706,716	23,366,227	34,997,638
1949	69,306,580	28,178,538	34,640,233
1950	80,459,585	32,584,588	34,218,000

largest phosphate rock mining operations in the world are now conducted by this company at its Noralyn mine near Mulberry.

In 1948 the Botany Mills were sold on the advantages of locating in company territory. A steady stream of small industries has followed. Efforts of the government to disperse industry may lead other companies to locate in Florida. And the company may pick up load from military, naval, and air installations.

A further step in promoting its service area was taken in 1950 when a national advertising program was conducted in several nationally circulated magazines and New York newspapers. A community development department was also organized to work with community and civic leaders.

For its successful promotion "stunts" Florida Power has received national recognition. In 1945 when the company wished to sell $9 million in common, it "brought" Florida to New York City. A special display was set up in the financial district. This publicized the state as an industrial area as well as a place for vacations and citrus orchards. All important executives of the company were at the exhibit. They wore orange-colored coats and purple trousers, each trimmed in the other color. This promotion not only sold the stock but got the company some publicity in "Life" magazine.

In 1949 when there was more stock to be sold, a group of 90 investment bankers and their families were picked up in New York and taken to Florida for a five-day tour of the company's area. Ironically the bankers got nothing out of the trip but a short vacation. The stockholders who had first rights oversubscribed the issue. This tour also got "Life" publicity.

Naturally Florida Power has been forced to spend considerable money for new construction. Expenditures by year have been as follows: $5,553,648 in 1946, $7,763,812 in 1947, $7,851,800 in 1948, $9,885,493 in 1949, and $13,037,868 in 1950. Planned expenditures for 1951 are now $17.5 million, for 1952 $18.4 million, and for 1953 and 1954 $15 million each.

Most of the money will go for new generating facilities. Since 1945 the company has added only 66,750 kw to give the system a total capacity of 180,371 kw. But an additional 190,000 kw to be added by the end of 1953 will double present capacity. Three 40,000-kw units will go in the new Booth Point Plant. Another 40,000 kw will be added at Avon Park Plant. At a new plant, which may be built in Georgia, there will be a 30,000-kw unit. All of the new plants and most of the present major ones are steam plants using oil for fuel. The company has some small diesel plants and surprisingly enough some small hydro plants. These however are not a too dependable source of energy.

One of the company's big problems has been to close the gap between the extremely small power sales in summer and the peak sales in winter. In this the company has been very successful. In 1950 the gap was only 15 million kwhr, from 93 million

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kwhr in August to 108 million kwhr in December. Load factor that was 54.9% in 1945 rose to 60.5% in 1950. This increase has been attributed to more year-round residents, more diversified load, and air conditioning.

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REA Loan Approved for Wisconsin Co-op

Dairyland Power Cooperative, Lacrosse, Wis., one of Rural Electrification Administration's largest borrowers, has been approved for a new multi-million dollar loan to add new generating capacity and transmission facilities.

REA Jan. 30 announced approval of a $5,440,000 loan to Dairyland to finance an additional 30,000-kw unit at the E. J. Stoneman steam plant, Cassville, Wis.; two 16,600-kw units at the Port Arthur, Wis., hydro plant which is being redeveloped; 39 miles of 34.5-kv line; 49.8 miles of 69-kv line; and 18 new substations.

Dairyland, a co-op federation with 25 member distribution co-ops in Wisconsin, Iowa, Minnesota, and Illinois, has previously borrowed $42,275,739 from REA. Its present system serves 73,000 consumers with installed generating capacity of 107,750 kw and 2,100 miles of high-voltage transmission line.

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100,000-Kw Steam Plant Will Be Added by Vepco

Virginia Electric & Power Co will begin construction immediately on a 100,000-kw steam plant at Gilmerton. Vepco has also accepted an FPC license for authority to proceed with construction of a 91,000-kw hydro plant at Roanoke Rapids, N. C.

In addition the company has filed an application with FPC for authority to develop another 91,000-kw hydro plant at Gaston, Va., 10 miles upstream from Roanoke Rapids.

Initial capacity at the Gilmerton Plant is scheduled for completion in 1952. Plans call for an eventual capacity of 400,000 kw. Actual construction of the Roanoke Rapids Plant will not begin until it is ascertained whether the Department of Interior plans to make a court test of the FPC ruling which granted Vepco a 50-year license for the project.

Changes in Capacity Reported to Federal Power Commission

PLANT ADDITIONS DURING NOVEMBER

Utility	Plant	Fuel	Capacity (Kw)
Bangor (Maine) Hydro Electric Co	Veazie	S	6,000
Cambridge (Mass.) Electric Light Co	Cambridge	S	3,500
Niagara Mohawk Power Corp	Dunkirk, N. Y.	S	80,000
West Penn Power Co	Milesburg, Pa.	S	23,000
Commonwealth Edison Co	Ridgeland, Ill.	S	150,000
Heyworth (Ill.) Municipal Light & Power Department	Heyworth	IC	240
Traer (Iowa) Municipal Light & Water Plant	Traer	S	1,000
Central States Electric Co	Britt, Iowa	IC	1,150
Anthony (Kan.) Electric Department	Anthony	S	1,500
Centerville (Md.) Electric Plant	Centerville	IC	500
U. S. Navy Engineers	New River Diesel, N. C.	IC	2,500
Georgia Power Co	Yates	S	100,000
Franklin (La.) Electric Light Plant	Franklin	IC	538
Gulf States Utilities Co	Louisiana Station	S	40,000
Denton (Tex.) Water & Light Department	Denton	IC	2,410
Southwestern Electric Service Co	Rosebud, Tex.	IC	675
Public Service Co. of Colorado	Arapahoe	S	40,000
Provo (Utah) Department of Utilities	Provo	S	7,500

PLANT RETIREMENTS DURING NOVEMBER

Otter Tail Power Co	Hoot Lake, Minn.	S	1,500
Otter Tail Power Co	Crookston, Minn.	S	1,500
Iowa Southern Utilities Co	Washington	S	1,500
Waunata (Neb.) Municipal Utilities	Waunata	H	100
Kansas Power & Light Co	Dolphos	IC	120
Arkansas Power & Light Co	Russelville	H	668
Southwestern Electric Service Co	Rosebud, Tex	IC	80
Mountain States Power Co	Buffalo No. 2, Wyo.	IC	100

H—Hydro, IC—Internal Combustion, S—Steam
United States Capacity as of Dec. 1—Steam, 48, 519,458 kw, Internal Combustion, 1,893,969 kw; Hydro, 17,561,962 kw; Total, 67,975,389 kw.

Intertie of Pacific Coast Power Pools Is Opposed

Opposition to the Department of Interior's program for connecting Pacific Northwest and California federal power lines has developed in the area served by Bonneville Power Administration.

Agreement of federal officials on construction of a 119-mile transmission line from Klamath Falls, Ore., to Shasta Dam in northern California (EW, Feb. 12, p 89) drew bitter comment from Gov Arthur B. Langlie of Washington. "It's a federal empire building instead of a practical approach to power problems of the region," Langlie declared in reference to the Bureau of Reclamation plan. "I don't think it's good for either region to transport power over that distance."

The governor said authorization for the link was being pushed through Congress "under the guise of importance for defense reasons and supply of additional electric energy for the Northwest, but it now appears its primary use would be for exportation of power out of the area, contributing little or nothing to the defense effort."

Material and manpower required for the tie-line "would be far more effective in the defense effort if expended in building additional transmission circuits from the Albeni Falls, Chief Joseph, and McNary projects to the load centers in the Oregon and Washington coastal areas," Langlie stated.

And a resolution unanimously adopted by the Washington State Columbia Basin Commission said: "It seems unreasonable to plan for transporting power out of the Northwest while Interior Department representatives even now are searching for new power here."

On the other hand, D. L. Marlett, assistant Bonneville Power administrator, declared that the California-Northwest link will be a boon to Northwest industries, particularly defense plants. He estimated that 440 million kwhr of hydro energy goes to waste in the Columbia Basin during the highwater period.

The interconnection, he explained, will make it possible to sell some 120,000 kw of this surplus power, and then, during low water periods California steam plants will be able to relieve the shortage in the Northwest.

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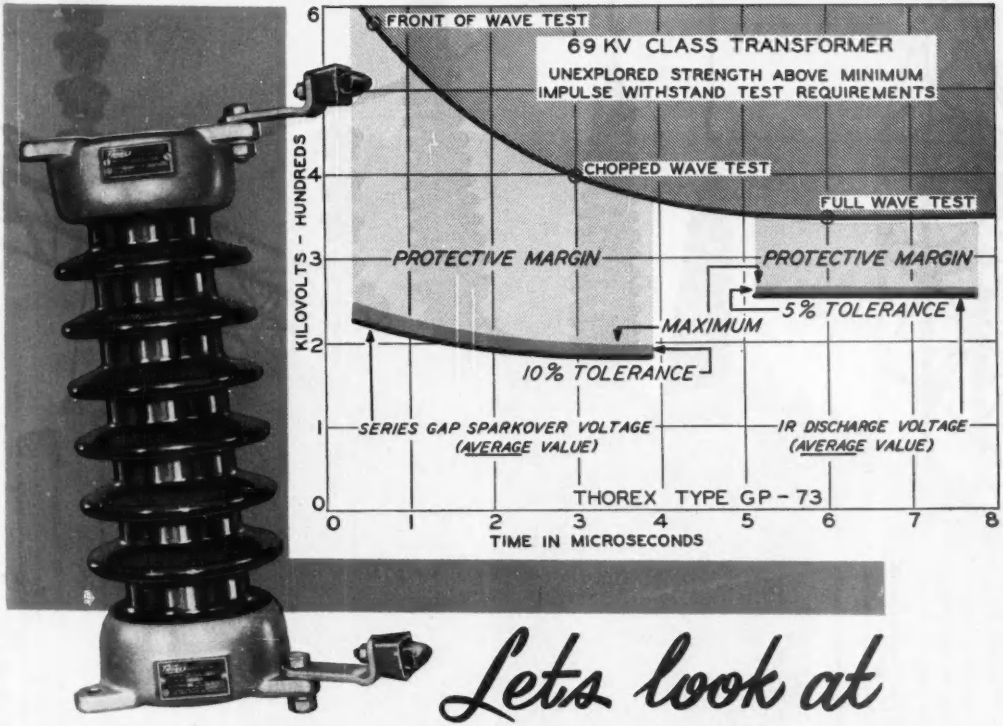
Named to State Commission

June Van Keuren has been appointed by Governor Stevenson to the Illinois Commerce Commission. He replaces John D. Biggs who has resigned. Van Keuren is a former city attorney of Duquoin and Perry County judge. Both are Republicans.



Lets look at LIGHTNING ARRESTER TOLERANCE another way..

- **You add it to average ratings**
- **But take it from Protective Margins**
- **Can you afford to waste any arrester protection?**

The story of lightning arrester tolerance is told in graphic terms in the accompanying curves relating to a typical 69-kv transformer. All published arrester values are *average* ratings to which tolerance is *added*. Between these basic *average* ratings and the demonstrated strength of the transformer exists a zone called the "Protective Margin". It's not so important that tolerance is added to published values as it is that tolerance is *deducted* from that vital Protective Margin. This is just a different way of saying the same thing--but an important difference!

--And while you are considering tolerance, bear in mind that the O-B Thorex arrester has by far the closest tolerance ratings offered on the American market; giving you wider, more usable Protective Margins. Investigate this phase of the O-B Thorex.

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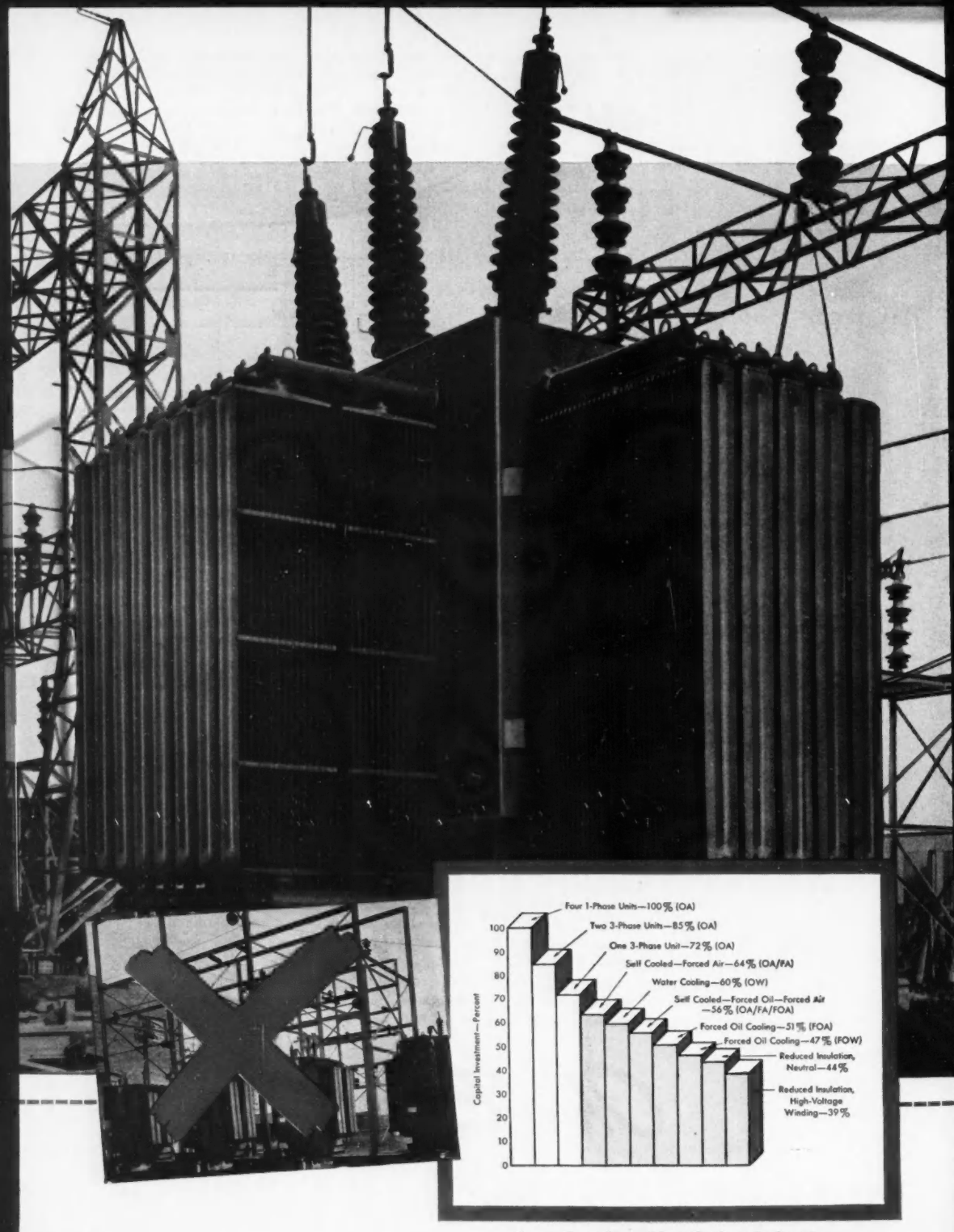

Summation of possible reductions in investment for generating station transformer banks.

MODERN 3-PHASE POWER TRANSFORMERS

Cut Capital Investment 15% to 28%

Important improvements in power transformer design and applications can bring savings that add up to 50%, and more.

For example, banks of single-phase transformers are being superseded by three-phase units, used singly and in pairs. In a typical instance, two three-phase transformers cut initial cost by 15% over a four-unit single-phase bank. Since reliability has been increased to a point where outages are practically negligible, a single large three-phase unit can be used, at an additional savings of 15%, or an over-all economy of 28% . . . and there's an appreciable improvement in transformer efficiency.

These examples are based on straight self-cooled design. By various applications of new cooling and insulating techniques, capital savings can be made to reach, or even exceed, 50%.

Westinghouse Power Transformers are smaller and lighter per kva than any other transformer on the market. As a result, you can expect these additional savings:

1. **Reduced space required.**
2. **Smaller foundations.**
3. **Smaller superstructures.**
4. **Lower field-assembly expense. Transformers shipped more completely assembled.**
5. **Lower maintenance expense... Rugged all-welded construction plus smaller size.**

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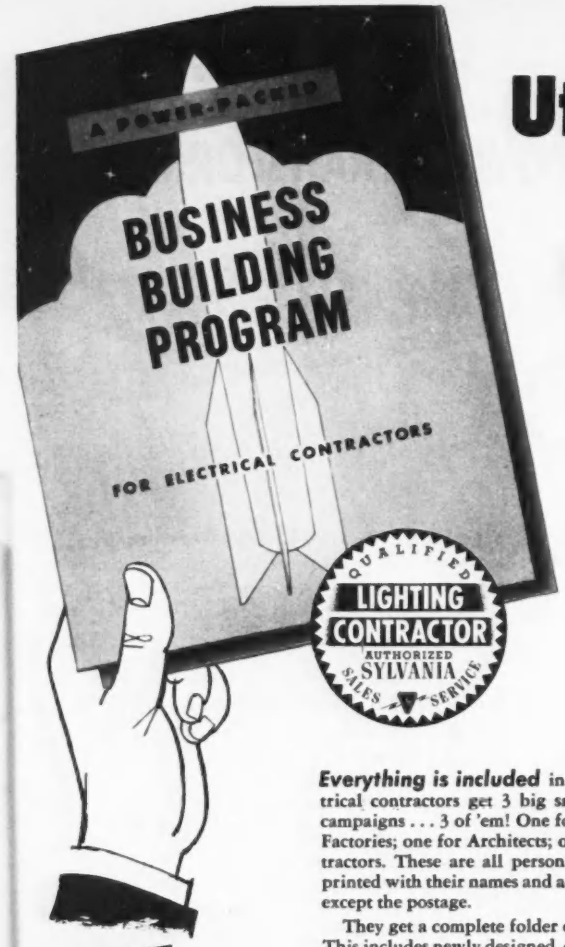

Utility Men—

Look at Sylvania's New Electrical Contractor Campaign!

Everybody Profits with Sylvania!

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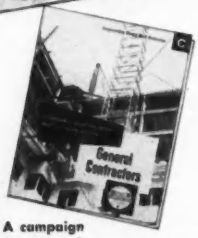
2 Special campaign for Architects



3 A campaign for General Contractors

4 Folder of Free Business Boosters

5 New Lighting Sales Manual

Everything is included in this program. Electrical contractors get 3 big smashing direct mail campaigns . . . 3 of 'em! One for Offices, Stores and Factories; one for Architects; one for General Contractors. These are all personalized mailings, imprinted with their names and addresses . . . all FREE except the postage.

They get a complete folder of new business aids. This includes newly designed, colorful emblems for their windows and trucks . . . ad mats . . . radio announcements . . . news stories . . . speeches. Also a valuable lighting sales manual "A New Method of Planning and Selling a Fluorescent Installation." This book is a gold mine in itself!

And that's not all. National advertising and the big TV Show, "Beat the Clock" will tell millions about Sylvania Fluorescent Lighting and the contractors who show the Sylvania emblem.

So, for bigger, brighter business *stay with Sylvania.* For full details about Sylvania's bigger-than-ever sales program write today to: Sylvania Electric Products Inc., Dept. L-7202, 1740 Broadway, New York 19, N. Y.

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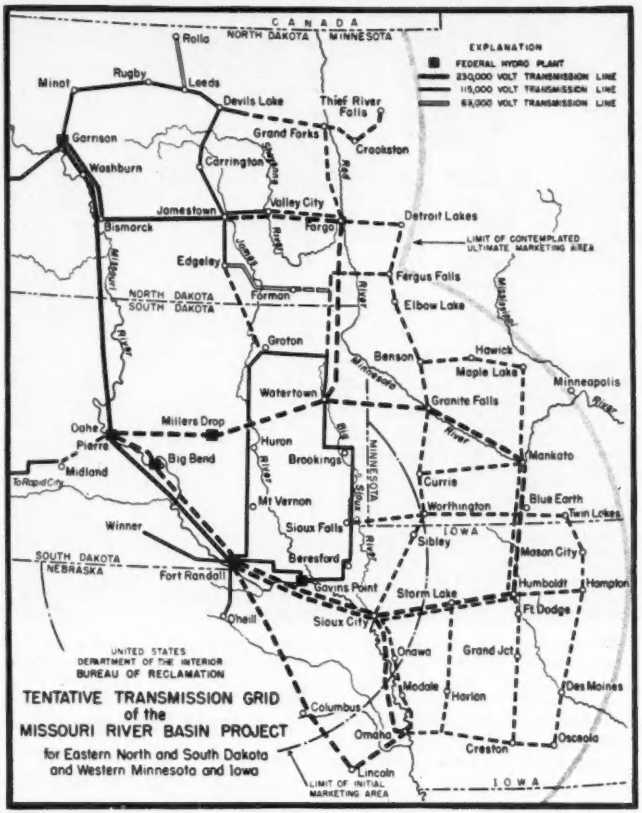

EXTENT of the Missouri River Basin project is indicated by the vast transmission net work (dashed lines) which the Bureau of Reclamation proposes to build

Interior Markets 24.1 Billion Kwhr in Fiscal '50, Takes in $59.8 Million

Power agencies of the Department of the Interior marketed 24.1 billion kwhr with revenues of $59.8 million in the fiscal year ended last June 30.

Department power statistics are an important part of Secretary of Interior Oscar L. Chapman's annual report issued in Washington last week.

Power sales jumped 6.6% in fiscal '50, compared with the previous year, while revenues increased 11.4%. The department figures include the Bureau of Reclamation and Bonneville, Southwestern, and Southeastern Power Administrations.

Continued gains in Interior's federal power empire are assured, the report indicated, with about 4.5 million kw of hydroelectric capacity now under construction. Ultimate development of projects now under construction could add another 3.3 million kw, while authorized projects on which construction has not been started have a planned total capacity of 10 million kw.

Interior's largest power operator, Reclamation, had total installed capacity of 3,168,400 kw by last June 30. Sales of electric energy during the fiscal year reached 19,790 million kwhr and $33.2 million.

Major power customers of Reclamation included 34 private electric utilities, 65 rural electric cooperatives, 41 public authorities, 27 commercial and industrial users, 26 municipalities, and 7 state government agencies. At the end of the fiscal year, 242 power contracts were under negotiation with 27 electric utilities, 112 co-ops, 72 municipalities, 9 federal agencies, 2 public power districts, 7 irrigation districts, 4 state authorities and 9 other consumers.

Reclamation's largest sales were 10,504,740,225 kwhr from Grand Coulee, sold to Bonneville Power Administration, but largest revenues were realized from sale of 4,642,908,691 kwhr to privately owned utilities. Bonneville paid reclamation $7,519,-093, while the utilities paid $15,-989,939.

Bonneville also set new records in fiscal '50, with sales totals of 13,032,173,000 kwhr and $31,026,-944, an average of 2.38 mills per kwhr. Customers included only 7 privately-owned utilities, with 73 publicly owned power distributors, 19 industrial customers, and 4 military establishments. BPA had 4,040 miles of high-voltage transmission line and 108 substations, as of June 30 of last year.

Four private utilities purchased the lion's share of the power marketed by the Southwestern Power Administration. Of total energy sales of $2,036,-940.44, private utilities bought $1,901,197.96, with the remainder purchased by four co-ops and one municipality.

Established only a few months before the end of fiscal '50, Southeastern Power Administration had total revenues of $1,329,591.57. Revenues from sale of power at Dale Hollow to the Tennessee Valley Authority were $1,081,400, while Georgia Power Co paid $248,191.57 for the output of the Allatoona project during the period from first operations at the dam on Feb. 3, 1950 to the end of the fiscal year.

Roberts New A-C President

William A. Roberts, executive vice president in charge of the tractor division of Allis-Chalmers Manufacturing Co, has been elected president. He succeeds Walter Geist, who died recently (EW, Feb. 5, p 22).

BPA-Central Valley Tie Planned by Reclamation

An interconnection between the Bureau of Reclamation's Central Valley (Calif.) power system and Bonneville Power Administration lines in southern Oregon highlights the Bureau's transmission-line construction plans for fiscal 1952. Total cost of the program is estimated at $47 million,

Bureau of Reclamation
Transmission Line Program

Line	Estimated Total Cost	Asked Fiscal '52
Oregon-California		
Bonneville-Central Valley	$5,370,000	$1,700,000
Iowa-Nebraska		
Sioux City-Omaha	4,128,574	207,463
Sioux City-Storm Lake, Iowa	793,000	118,428
Storm Lake-Omaha	2,025,000	30,624
Sioux City-Sibley, Iowa	1,104,000	467,643
North Dakota-Minnesota		
Jamestown, N. D.–Fergus Falls, Minn.	12,676,000	135,000
North Dakota		
DeVaul-Shields	335,000	15,000
Colorado		
Estes-Leyner	435,000	100,000
Central Valley California		
Keswick-Tracy, via Elverta	6,400,000	1,400,000
Folsom-Elverta, Scoto-Folsom-loop	1,949,000	500,000
Port Chicago-Mare Island	800,000	300,000
Tracy-Livermore-Ames	1,920,000	700,000
Tracy-Patterson-Naval Supply Depot	1,092,800	450,000
Montana		
Canyon Ferry-Three Forks-Anaconda	2,697,000	703,000
Canyon Ferry-East Helena	300,000	10,000
Miles City-Yellowtail	2,245,000	85,000
Yellowtail-Billings	892,000	810,000

but the bureau is asking only $7,802,400 for the coming fiscal year.

The Bonneville-Central Valley tie, long sought by federal power officials, would be a 230-kv line from Shasta Dam in northern California to a point near Klamath Falls, Ore., where it would interconnect with BPA lines.

Although it is expected that the power-short Northwest will oppose the line, it would work both ways. "Dump" power from the Columbia would move into California during high-water and off-peak periods to permit increased storage at Shasta Reservoir. At other seasons steam-generated power from Central Valley would be moved into the BPA area.

Included in the program is a $1,209,000 substation at Omaha for which $70,242 is asked in fiscal 1952.

•

Pulverizing Filter Destroyed

Damage estimated at $50,000 was caused recently at the Goudey Station of New York State Electric & Gas Corp, Binghamton, when a fire and an explosion destroyed a bag-type filter at the coal pulverizing plant. No interruption to service was reported.

WORKMEN REMOVE ICE from the intake screens at the Kansas City, Kan., municipal plant. Clogging of these screens by mushy ice caused recent shutdown of plant

•

AEC Promotes Williams

Walter J. Williams, director of production for the U. S. Atomic Energy Commission, has been promoted to deputy general manager succeeding Carleton Shugg who resigned. R. W. Cook, manager of Oak Ridge operations, succeeds Williams as production director. Both Williams and Cook were engineer officers with the wartime Manhattan District before the commission took over the atomic program.

•

St. Lawrence Plan Denied

Another application for a license to develop St. Lawrence River power has been denied by the Federal Power Commission. FPC Jan. 12 turned down an application by Public Power & Water Corp, Trenton, N. J. The corporation proposed to construct both the power project and a 30-ft navigation channel.

Municipal Interruption Caused by Sheared Pins

Sheared pins on the intake screen drive of the Kansas City, Kan., municipal plant resulted in total system interruption of 30 to 90 minutes at 7:15 am on Jan. 30. Shearing of the pins occurred when slush ice in the intake had already reduced flow to condensers by clogging screens. The ice condition also caused unusual strain on the pins. Men were on duty at the time trying to keep screens cleared of ice.

When the pins sheared on one screen the overloaded screens remaining in service blocked off water and condenser water pumps lost suction. Turbines then lost vacuum and circuits did not trip fast enough to prevent loss of the entire system which serves a population of 140,000. Partial service was restored in 30 minutes and complete service was back in 90 minutes.

Extremely low water conditions and a sudden drop in the Missouri River level contributed to the conditions that led to the interruption. This sudden drop in river level was reportedly caused by an ice jam.

TRANSMISSION INTERCONNECTIONS were the subject of this informal conference at Pennsylvania Electric Association's recent System Operations Committee meeting at Newark, N. J. Standing, left to right, are A. C. Hartranft, chairman of committee, Philadelphia Electric Co; C. H. Conrad, vice chairman, Pennsylvania Electric Co; and H. W. Philips, Pennsylvania-New Jersey Interconnection

System Interconnection Symposium Highlights PEA Committee Meeting

Data, decision, coordination, and policy are the four requisites to optimum operation of interconnected systems, the Systems Operation Committee of the Pennsylvania Electric Association was told at a meeting in Newark Feb. 8-9. Nearly 50 members and guests participated in a symposium on system interconnection which highlighted the two-day program.

H. W. Phillips, supervisor, Pennsylvania-New Jersey Interconnection, listed four requirements for successful interconnection operation: (1) Availability to both load dispatcher and accountants of full information on incremental costs, (2) centralized load control or a coordinating agency with load authority, (3) adequate telemetering, control and communication facilities, (4) overall supervision of policy by representatives of management with enough authority to make recommendations effective. He also suggested overall scheduling of maintenance outages by a special committee and emphasized that the ultimate object of interconnection should be operation of the integrated group as if it were under one management.

Savings realized by interconnection between systems are shared equally by the parties concerned, P. R. Courtney, Metropolitan Edison Co, said in discussing interchange accounting of the General Public Utility Corp group. On energy transaction supplier and receiver share the savings with intermediate transmitting companies; for emergency capacity without energy transfer (rolling reserve) transmitting companies, if any, receive nothing. Incremental energy costs are based on total cost of fuel, including handling and other indirect costs, plus incremental maintenance and a percentage to cover transmission line losses.

J. A. Rose, Public Service Electric & Gas Co, New Jersey, demonstrated the system of load scheduling used by his company. This system lists station minimum loads and specifies the order in which load capacity should be added or removed as determined by the incremental cost of that additional capacity. Rose said some compromises may be necessary because of practical considerations of machine capacities. Under conditions of rapid load changes, particularly after the evening peak, it is not worth while to attempt to remove units in the order of their operating efficiency.

Mechanical aids developed by Niagara Mohawk for computing line losses and incremental rates were described by W. D. Wilder. Basic curves with a sliding vertical scale enable the dispatcher or forecaster to read directly over-all energy cost for any number of hours of operation at any coal cost. A second device is a nomograph to determine cost of energy purchased on a savings-sharing basis, based on the user's cost and the supplier's incremental cost.

Reliability equalling that of overhead distribution construction is the basic reason for using a low voltage network when underground distribution is required, said H. M. Spooner, Public Service Electric & Gas. P. W. Crosby, Philadelphia Electric Co, said that the Philadelphia network which operates without network protectors has given excellent service for 23 years.

•

Pipeline to Move Coal to Be Constructed in Ohio

A pipeline has risen to challenge a proposed conveyor-belt line as a cheap means of transporting coal in Ohio. Legislation to give the pipeline public utility status has been introduced in the Ohio legislature where similar status is being sought for the beltline. The railroads are fighting the proposed beltline.

Pittsburgh Consolidation Coal Co will construct a pilot pipeline near Cadiz at the site of its Georgetown surface mining operation. The line will be 17,000 ft long and will consist of 12-in. pipe. Cost of the line, which is to be in operation this summer, has been estimated at $550,000.

The coal will be ground to small sizes and mixed with water. The slurry will not be run through the pumps on the line because of pump blade erosion. Instead propulsion will come from additional water forced into the line by compressor pumps built alongside.

Both the pipeline and beltline are intended as a means of transporting coal from southern Ohio to the Cleveland area. Utilities would be the big gainers from the pipeline because Ohio coal is not favored for use in steel mills. The beltline, extending from the Ohio River, could be used to move coal from other states and in addition to move iron ore southward. Both systems would cut transportation costs as much as $1 a ton.

Coming of Controlled Materials Plan Placed on Schedule by Mobilizers

Coming of the Controlled Materials Plan, which eventually will control expansion and operations of the power and construction industries, has been placed on a definite schedule by Washington's mobilizers.

The electric utilities, of course, already have reported their materials requirements to the Interior Department's Defense Electric Power Administration. Some other construction programs, like those of the Atomic Energy Commission and the Army's Corps of Engineers, also have been surveyed to get estimates of materials needs. These and estimates of requirements of most of the rest of industry will go to the Defense Production Administration March 1.

Meanwhile, the Controlled Materials (copper, steel, aluminum) Division of DPA is gathering data on production of metals in various shapes and forms. The production controls staff of DPA is readying regulation of MRO (maintenance, repair, operations) supplies and rigid controls for inventories.

March 1 also will bring the initial flood of informational data for industry on CMP. This data will be distributed directly from DPA and from the field offices of the several other mobilization agencies. It will flow to industry in increasing volumes until CMP goes into effect July 1.

Other important dates on the present CMP program are:

April 15—When prime users of controlled materials will get form applications for materials for military and essential civilian production. These will firm up earlier estimates compiled by the mobilization agencies for actual third-quarter requirements. The applications will be screened by the claimant agencies and sent to DPA by the end of May.

June 1—DPA will split the available supply of controlled materials among the claimant agencies. This doesn't mean that every industry will get just what it wants in the way of metals.

Depa, for example, may be directed to scale back utility programs by "x" tons of steel. But because of the speed with which the controls machinery has been set up and the upheaval of production that would result from any drastic changes ordered for the third quarter, CMP is not expected to curtail much essential production in the third quarter.

June 15—Claimant agencies and National Production Authority's industry divisions will split the allotments given them by DPA among major producers.

The key allotments, as far as utilities are concerned, will be made by NPA's Power Equipment Division in cooperation with Depa. The result will be allocations of metals to makers of power equipment, who, in turn, will pass on portions of their allotments to their suppliers.

July 1—CMP will become effective.

August 1—Major consumers of metals, in both military and essential civilian production, will report their fourth-quarter metals needs to their clamant agencies.

Industry Orders Issued by the NPA

The following M orders of interest to the electrical industry have been issued by the National Production Authority. Orders not of interest to the industry have been omitted. Copies of these orders may be secured from the National Production Authority, Washington 25, D. C. or from any regional office of the Department of Commerce.

M-1—Steel: Applies to 31 different steel shapes and forms and designates percentage of each for which mill must accept defense orders. Percentages vary from 5 to 25% and are based on average monthly shipments during first eight months of 1950—as amended.

M-2—Rubber: Limits use of natural rubber and natural rubber latex. Fixes minimum percentages of synthetic rubber that must be used in certain products—as amended.

M-3—Columbium bearing steel: Practically limits use of columbium bearing steel to DO-rated orders. Orders use of substitutes wherever possible.

M-5—Aluminum: Applies to 23 different aluminum products, shapes, and forms. Fixes percentage of each which producer must apply to defense orders at 45% of his average monthly shipments during first eight months of 1950—as amended.

M-6—Steel distributors: Establishes allotments of steel to distributors by manufacturers—as amended.

M-7—Aluminum use: Bars use of aluminum in a long list of products deemed non-essential after April 1. Restricts use of aluminum for such products in February to 75% and in March to 65% of average monthly use during first six months of 1950—as amended.

M-8—Tin: Limits inventories of pig tin, alloys, and other materials containing tin. Prohibits use of pig tin where secondary tin can be used—as amended.

M-9—Zinc: Provides rules for placing, accepting, and scheduling rated orders for zinc.

M-10—Cobalt: Prohibits use in non-essential products. Limits inventories. Allocates cobalt—as amended.

M-11—Copper and copper base alloys: Provides rules for placing, accepting, and scheduling rated orders for unalloyed copper, copper-base alloy, brass mill products, copper wire mill products, and foundry copper products. Prohibits non-essential uses—as amended.

M-12—Use of copper and copper-base alloys: Limits non-rated use of copper. Describes how copper remaining after allowing for requirements of national defense may be distributed and used in civilian economy.

M-14—Nickel: Limits use of primary nickel for non-defense products during first quarter of 1951 (except for maintenance, repair, operating supplies) to 65% of average quarterly consumption during first half of 1950. Prohibits non-essential uses—as amended.

M-15—Use of zinc: Limits use of zinc and zinc products (except for maintenance and repair) to 80% of the average quarterly consumption during the first six months of 1950.

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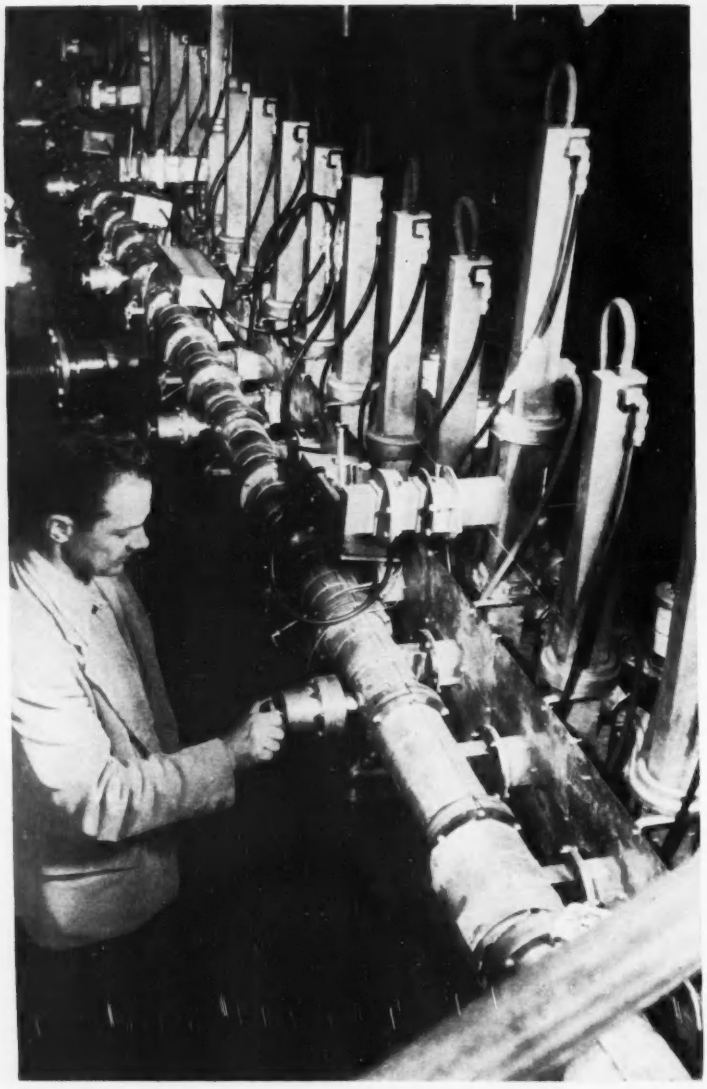
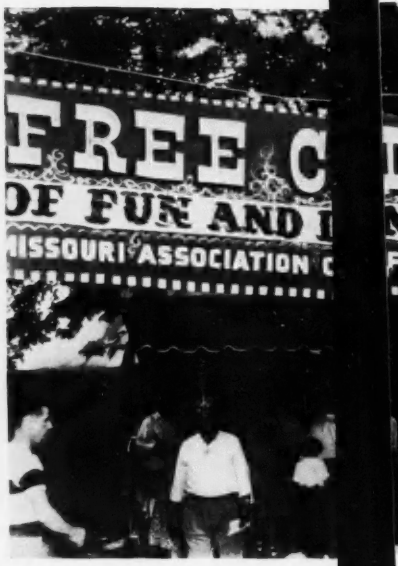
LINE MATERIAL . . . Street Lighting

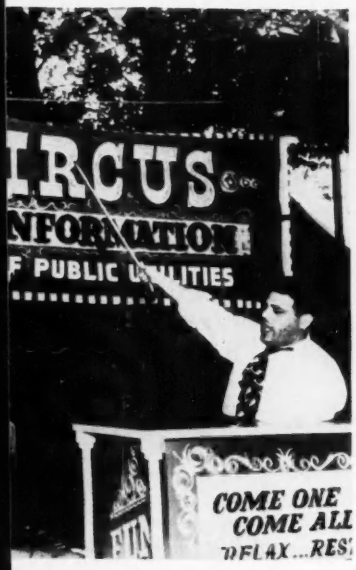


LINEAR ACCELERATOR now in use in the Laboratory for Nuclear Science and Engineering at Massachusetts Institute of Technology is demonstrated by Dr Arthur F. Kip, assistant professor of physics, who was in direct charge of its construction. The 17-million-v accelerator pushes electrons out of a 21-ft pipe with enough energy to crack the hard centers of target atoms. Radiation produced is equivalent to that from more than 2 lb of radium. Although its energy of 17-million v is not unusually high by comparison with other machines like the synchrotron, the accelerator will be very useful because of its intense and narrow x-ray beam and its neutron output. Electrons shoot into the accelerator at nearly the speed of light from an electrostatic generator. They rush the length of the 21-ft tube by riding on waves of high-frequency electricity. At the end of the tube the electrons enter a vacuum-tight metal box. To shield workers from the neutrons, the target box is located in a room-size concrete cubicle. The waves on which the electrons ride down the tube are generated by 21 radio transmitters of the type used in radar sets, technically known as "magnetrons," one to a foot. The problem that had to be solved was to get the "magnetrons" synchronized so that each electron is pushed ahead and not backward when it enters successive sections. This problem was solved



FREE CIRCUS is the latest promotion of
Circus-type displays promote the cause o

THE CIRCUS GROUNDS are now in the lo
Co at St. Louis. But soon circus will vis

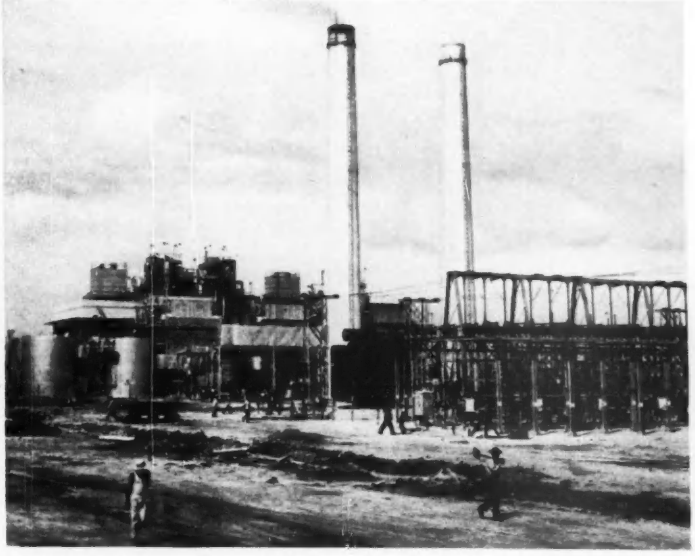


he Missouri Association of Public Utilities.
the state's tax-paying utilities.....

EVERYBODY from tiny tots to nonagenarians is attracted to the display, but here an added attraction is a contest for which the big prize is a major appliance.....

The Industry in Pictures

by of the headquarters of the Union Electric
service areas of other member companies



PUERTO NUEVO steam plant of the Puerto Rico Water Resources Authority is now supplying energy to the island's interconnected system. Present capacity is 20,000 kw

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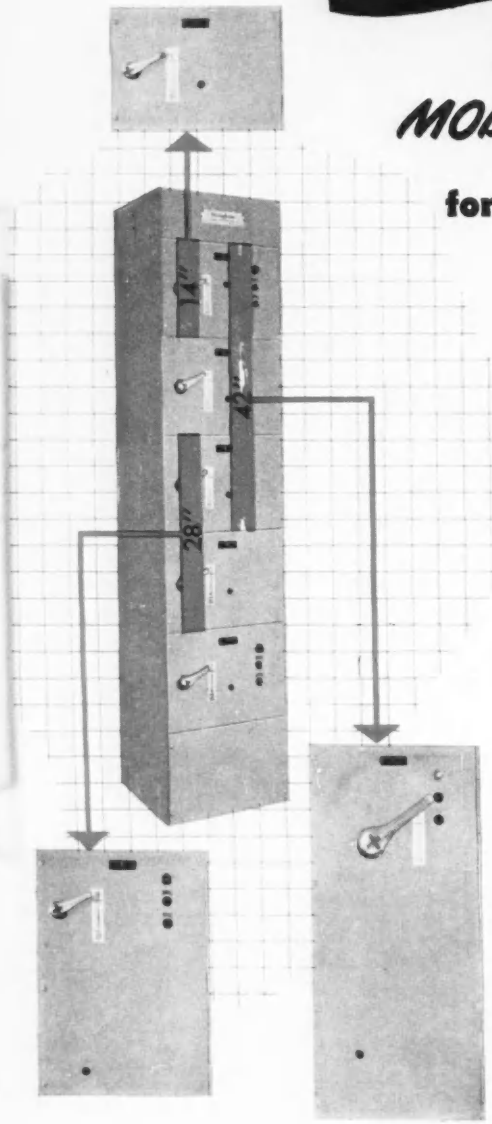


No other control center gives you so much flexibility as the new Westinghouse design. Standardized, modular dimensions are the source of this important advantage.

Vertical structures of standard width and depth are 76″ or 90″ in height. Starter units are 14″ high or in multiples of 14″. This modular design permits many combinations of starter units in single vertical structures. It provides for simple interchangeability between large and small units to meet changing requirements.

The new Westinghouse design also provides for back-to-back mounting without increasing depth. This permits a greater number of starter units to be installed in each vertical structure. To meet growing control requirements, additional vertical structures may be added to the group already in service.

Consider all the advantages of this new control center!

New Magna-Grip "plug-in" connectors for greater operating simplicity; a large vertical wiring trough for greater wiring convenience; interlocking handles and "tilt position" disconnect for extra safety. These are random examples. The complete story is in Booklet B-4213. For your copy, write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-21545

Westinghouse

CONTROL CENTERS

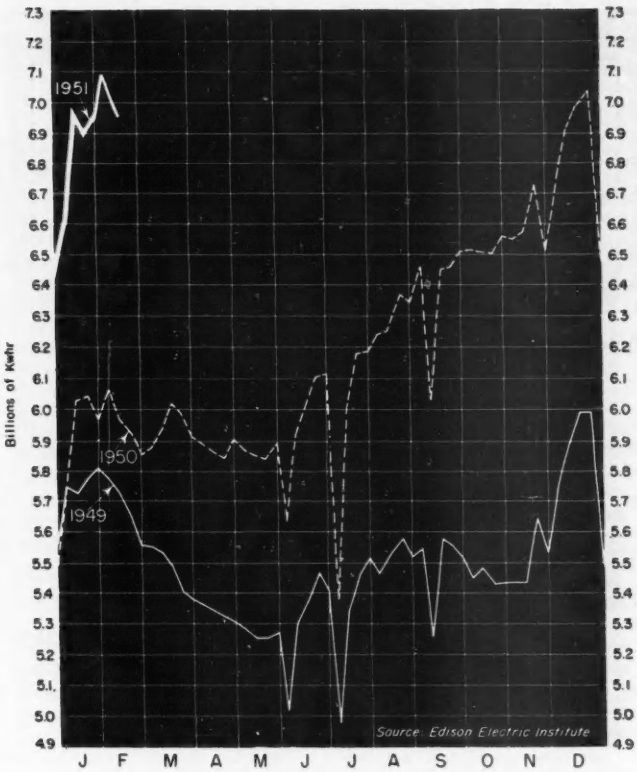
Utility Coal Consumption In '50 Is 9.4% Over '49 Use

Coal consumption by electric utility power plants during 1950 was 9.4% above the 1949 use, amounting to 91,865,978 tons, Federal Power Commission reports.

Fuel oil requirements in 1950 were 75,287,618 barrels, a new record which exceeded the previous high of 1949 by 13.6%. Gas consumption totalled 627,978,581,000 cu ft, another record and 14.2% above the previous high reached in '49.

Total amount of coal and estimated coal equivalent of other fuels used for utility generation was approximately 138,596,000 tons. The indicated 1950 coal rate, based on actual coal use and corresponding net generation by coal, was 1.19 lbs per kwhr.

Stocks of coal on hand at electric utility power plants on Jan. 1, 1951, totalled 31,841,630 tons, 44% above stocks a year ago. Fuel oil stocks on hand at the same time were sufficient to last 50 days compared with 33 days a year ago.



Output Week Ended Feb. 10—6,957,284,000 Kwhr

Weekly Output, Millions Kwhr						Percent Change from Previous Year		
1951		1950		1949			Feb 10	Feb 3	Jan 27
Feb 10	6,957	Feb 11	5,971	Feb 12	5,722	New England	+13.8	+16.7	+13.8
Feb 3	7,099	Feb 4	6,062	Feb 5	5,778	Mid-Atlantic	+15.6	+16.8	+16.0
Jan 27	6,970	Jan 28	5,972	Jan 29	5,810	Central Industrial	+17.3	+19.5	+18.6
Jan 20	6,909	Jan 21	6,041	Jan 22	5,769	West Central	+16.4	+16.4	+13.1
Jan 13	6,981	Jan 14	6,029	Jan 15	5,727	Southeast	+24.5	+23.1	+22.8
Jan 6	6,602	Jan 7	5,695	Jan 8	5,742	South Central	+14.7	+15.3	+17.8
1950		1949		Jan 1	5,562	Rocky Mountain	+ 8.2	+ 7.5	+11.3
Dec 30	6,479	Dec 31	5,493	1948		Pacific Coast	+11.4	+10.7	+11.0
Dec 23	7,033	Dec 24	5,994	Dec 25	5,508				
Dec 16	6,985	Dec 17	5,997	Dec 18	5,796				
Dec 9	6,909	Dec 10	5,881	Dec 11	5,705	Total United States	+16.5	+17.1	+16.7

MEETINGS

North Central Electrical Association
Electrical Industries Convention, Nicollet Hotel, Minneapolis, February 25-28.

★**Pennsylvania Electric Association**
Electrical Equipment Committee, Hotel Emerson, Baltimore, Md., March 1-2; Prime Movers Committee, Berkshire Hotel, Reading, Pa., March 8-9; Joint Meeting of Electrical Equipment, Transmission and Distribution Committees, Abraham Lincoln Hotel, Reading, Pa., May 10-11.

★**American Society for Testing Materials**
Spring Meeting, Netherland Plaza Hotel, Cincinnati, Ohio, March 5-9; Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 18-22.

National Electrical Manufacturing Association
Annual Meeting, Edgewater Beach Hotel, Chicago, Ill., March 12-15.

National Association of Corrosion Engineers
Conference and Exhibition, Hotel Statler, New York, March 13-16.

Protective Relay Engineers
Annual Conference, Agricultural & Mechanical College of Texas, College Station, Texas, March 26-28.

Oklahoma Utilities Association
Annual Convention, Mayo Hotel, Tulsa, Oklahoma, March 29-30.

Southeastern Electric Exchange
Engineering and Operation Section, Vinoy Park Hotel, St. Petersburg, Fla., March 29-30; Annual Conference, Boca Raton, Fla., April 11-13.

★**Edison Electric Institute**
Annual Sales Conference, Edgewater Beach Hotel, Chicago, April 2-5; Purchasing and Stores Committee Annual Conference, Lord Baltimore Hotel, Baltimore, Md., April 30-May 2; Meter and Service Committee, jointly with Association of Edison Illuminating Companies Committee on Metering and Service Methods, Huntington Hotel, Pasadena, Calif., May 7-9; Commercial Electric Cooking Conference, Sheraton Hotel, Chicago, Ill., May 9; Electrical Equipment Committee, Hotel Biltmore, Los Angeles, Calif., May 28-29; Annual Convention, Shirley Savoy Hotel, Cosmopolitan Hotel, Denver, Colo., June 4-7.

★**American Society of Mechanical Engineers**
Spring Meeting, Atlanta Biltmore Hotel, Atlanta, Ga., April 2-5; Semi-Annual Meeting, Royal York Hotel, Toronto, Canada, June 11-15.

Electric Association of Chicago
Industrial Electrical Exposition, Sherman Hotel, Chicago, Ill., April 2-7.

Midwest Power Conference
Sherman Hotel, Chicago, April 4-6.

★**Missouri Valley Electric Association**
Engineering Conference, President Hotel, Kansas City, Mo., April 4-6; Accounting Conference, President Hotel, Kansas City, Mo., May 17-18.

Indiana Electric Association
Young Men's Utility Conference, Ipalco Hall, Indianapolis, April 10-11.

American Institute of Electrical Engineers
District No. 4 Meeting, McFadden-Deauville Hotel, Miami, Fla., April 11-13.

Northwest Public Power Association
Annual Convention, Cascadian Hotel, Wenatchee, Wash., April 12-14.

★**Rocky Mountain Electrical League**
Annual Spring Conference, Shirley Savoy Hotel, Denver, Colo., April 15-18.

★**Northwest Electric Light & Power Association**
Engineering Section, Hotel Utah, Salt Lake City, Utah, April 25-27; Business Development Section, Multnomah Hotel, Portland, Ore., May 7-9; Personnel Section, Davenport Hotel, Spokane, Wash., May 16-18.

★**New Jersey Utilities Association**
Spring Meeting, Seaview Country Club, Absecon, N. J., May 4.

★**American Public Power Association**
Annual Convention, Read House, Chattanooga, Tenn., May 7-9.

★**Missouri Association of Public Utilities**
Annual Convention, Jefferson Hotel, St. Louis, Mo., May 7-9.

★**Pacific Coast Electrical Association**
Annual Convention, Biltmore Hotel, Los Angeles, Calif., May 21-23.

★**Canadian Electrical Association**
Annual Convention, Algonquin Hotel, St. Andrews, New Brunswick, June 18-20.

★ Addition this week

YIELDS (%) — Operating Electric Utility Securities

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1950									
Feb. 8	2.65	2.67	2.77	3.81	4.02	4.48	5.57	6.22	6.99
Feb. 1	2.65	2.67	2.76	3.82	4.03	4.50	5.58	6.25	6.95
END OF QTR.									
4th 1950	2.65	2.67	2.78	3.86	4.14	4.51	5.80	6.54	7.44
3rd 1950	2.66	2.67	2.76	3.81	4.08	4.46	5.70	6.54	7.25
2nd 1950	2.68	2.66	2.74	3.79	4.03	4.38	5.38	6.51	7.50
1st 1950	2.59	2.61	2.74	3.78	4.01	4.36	5.22	5.85	6.67

Data: Reis & Chandler, Inc.

Attempt to Dispose of WWP to PUD's Believed Near

Long-awaited action on disposal of Washington Water Power Co by its parent holding company, American Power & Light Co, was believed near as "Electrical World" went to press.

Rumors of a proposed sale of the company's assets in Washington to public utility districts were heard, and it was learned that AP&L Pres Howard Aller had discussed WWP's future with Securities and Exchange Commission officials. Last week in New York Aller denied there were any sale plans yet.

Meanwhile, aroused senators from Washington, Oregon, and Idaho, in two conferences with SEC officials, urged that the commission promise public hearings on any proposal submitted by Aller. SEC Chairman Harry McDonald made no firm promises, said SEC will decide the question after it has been notified of AP&L's plans. Hearings might be held either in Spokane or the capital.

•

Dallas P&L Is Granted Increase in Rates of 11%

An 11% rate increase will go into effect in Dallas with the next meter reading. The city council granted the boost requested by Dallas Power & Light Co after modification of clauses that tied rates to the United States Department of Labor commodity price index and to fuel costs.

The company had asked for a rate boost of 0.5% for each 3-point increase above 170 in the commodity index average for the previous six months.

The city decided to base such an increase on the index average for the previous 12 months and to require city council approval. The company's request for higher rates if fuel costs should rise was modified to apply only to costs of gas, the utility's major fuel.

The increase will up the company's annual revenue by about $1.9 million, George L. MacGregor, president, estimated. Dallas P&L intends to spend $27 million on expansion in the next three years.

•

Arizona Edison Exempt from FPC Jurisdiction

Arizona Edison Co is not subject to rates and accounting regulations of the Federal Power Commission, a federal court at Phoenix has ruled.

The utility operates entirely within the state of Arizona, which fully regulates and controls all its property and transmission lines. Hence the company does not come under interstate commerce jurisdiction, Judge Dave W. Ling ruled.

FPC claimed Arizona Edison was in interstate commerce through purchase of Colorado River power. The issue was first raised when Arizona Edison purchased Yuma, Ariz., properties of California Electric Power Co and Calepco filed for FPC approval.

The test case is considered a precedent for some 40 utilities faced by similar controversy with FPC on interstate commerce and jurisdictional grounds.

McCormick Quits SEC to Head Curb Exchange

Edward T. McCormick, 40-year-old member of the Securities and Exchange Commission, has resigned to become president of the New York Curb Exchange. He succeeds Francis Adams Truslow, who is undertaking undisclosed government work.

McCormick was appointed to the commission in 1949 after serving on the staff of SEC since its beginning in 1934. He was assistant director of SEC's division of corporation finance when he was named a commissioner to succeed Edmond M. Hanrahan. President Truman is expected to name another Democrat to the term, which expires June 5, 1952.

FINANCIAL BRIEFS

Proposals now before the Texas legislature would affect prices for natural gas. One bill would set a minimum price of 10¢ a thousand cu ft at the well, and another would double the present state severance tax. A special 10% increase voted last February on gas and some other tax sources is scheduled to expire in August.

New England Gas & Electric Association has asked Securities and Exchange Commission authorization to donate to its subsidiary, New Hampshire Electric Co, all the capital stock of Kittery Electric Light Co, 4,200 $50-par shares. Kittery operates in a territory adjacent to New Hampshire's and is dependent upon the latter for its power supply. New England G&E also asked for exemption as a holding company if New Hampshire acquires the Kittery stock.

Peabody, Mass., Municipal Light Department has reduced rates to all classes of customers by $50,000 for 1951.

Electric Utility Financing—February 3-10

Company	Description	Amount of Offering (000)	Offering Price	Yield at Price to Public
Bonds				
Indianapolis Power & Light	2⅞% 1981 new money	$ 6,000	101.515%	2.80%
Carolina Power & Light	2⅞% 1981 new money	15,000	101.125	2.82
SCHEDULED				
Common Stock—Central Illinois Light, 100,000 sh new money, $3,250,000; Lake Superior District Power, 41,845 sh new money, $1 million.				

IN THE INDUSTRY

KEN KOST

There is a new attitude evident among members of the National Rural Electric Cooperative Association. It was clearly evident at its ninth annual meeting held recently at Cleveland. NRECA, as most persons in the industry know, serves the co-ops as an industry association, provides them with an insurance service, conducts research of value to its members, and lobbies for legislation favorable to REA and the co-ops. In general the association has been favorable to federal power and unfavorable to the "power trust," whose definition seems to be broad enough to include every investor-owned electric company in the United States.

In the past some NRECA meetings have been lively affairs with violent denunciations of the private companies, affirmations in the cause of public power, firm resolves never to abandon the cooperative cause, and promises to fight the "power trust" to the last inch of distribution line. In fact some of those general sessions of by-gone days brought out the fervor of a high school "pep" rally.

Co-op Members' Attitude Reflects Strength

But the Cleveland meeting was different. The fighting spirit, probably fed by fear and uncertainty, was gone. In its place was the self-confidence of a well-established association assured of its own strength. NRECA now has 888 members, practically every operating cooperative in the country. They sent over 4,500 persons to Cleveland. And if there were any radicals in the group, they kept silent. Instead one saw a middle-aged group of middle-class rural Americans. It is doubtful if there were any millionaires present, but the average wealth of the delegates was probably greater than that of a similar group of urban dwellers.

Actually this was a group of capitalists. They own their own farms, orchards, ranches, dairies, or places of business. They also are on their way to owning their co-ops, and this may be responsible for their change in attitude. And with most co-ops getting all the electricity they need at satisfactory rates from either private or public sources, they have what they once fought to get, electric service. Now most seem ready to forget the war and to enjoy the fruits of peace and victory.

Columnist Provides the "Blood and Thunder"

There was some of the old "blood and thunder" at the meeting. It was provided by Robert S. Allen, once associated with Drew Pearson in writing the "Washington Merry Go-Round" column and now a columnist for many of the newspapers published by state associations of cooperatives. In a speech as vivid as his red hair he denounced the "power trust" and the present Congress which is threatening the very life of rural electrification. Metropolitan newspapers were scored as being favorable to "big business" and the utilities because they themselves are "big business." "Get into politics and elect your own men," he advised the cooperatives. "The private utilities are doing it all the time."

And he got the laughs. He deserved them. It was a lively speech.

But in all the tone of officers and speakers was mild. More than once speakers pointed out that the National Association of Electric Companies is doing a good job and warned that its efforts endangered the co-ops. Sure, it was a "wolf" cry, but from certain angles it was praise.

A further idea of how "co-op members are thinking" was brought out by REA Administrator Claude R. Wickard. In decrying the fact that some co-ops want to charge members in sparsely populated areas higher rates, he said, "In this country we want to treat everybody alike as much as possible." Later at a forum he defended REA's prevailing wage policy which brought severe criticism and protests from some of the delegates.

The co-ops have indeed become of age. Now they are owners of profitable utility systems themselves, just a bunch of capitalists.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Auxiliary systems in power plants are due for critical evaluation in the face of greatly increased automatization and rearranged disposition.

Unit-type station design is more readily justified if the forced outage rate is or has been assumed to be high, perhaps to recognize the risks of upped temperatures.

Industrial television is useful for: (1) Training maintenance crews, (2) observing stack emission and cleanliness, (3) watching coal conveyors, (4) checking gates, gatemen and passes. Such uses would dilute the present high cost for boiler flame and gauge monitoring.

Intercommunication is one of the cheapest and least dispensable forms of insurance to provide in a power plant.

Linemen often carry 25 lb of tools in their belts. A tool bag or bucket would be a safer place for them and for anybody below.

Rubber line hose and hoods might win stronger acceptance by linemen if they could be made just as effective but less stiff to apply.

Coil carbonization in overloaded watthour meters is not too easy to detect by conventional methods of electrical test without incurring risk of injuring good insulation.

Electrocarbonization of coal can produce large quantities of gas by passing current through the underground seams; the 3-year experiments reportedly indicate practicability, dependability and economy.

Flame and water-gauge television are rated as indispensable in some of the plants where they have served; tube life is prolonged by inbuilt voltage regulators.

NEWS ABOUT PEOPLE

Westinghouse Makes Fort, Lynde, McLeod, Loomis Vice Presidents

TOMLINSON FORT

L. W. McLEOD

E. W. LOOMIS

L. E. LYNDE

Westinghouse Electric Corp has elected four vice presidents.

They are Tomlinson Fort, manager of the company's headquarters apparatus sales department at Pittsburgh; L. W. McLeod, Southwestern district manager, with headquarters at St. Louis; Emery W. Loomis, Middle Atlantic district manager, Philadelphia; and L. E. Lynde, who has been New England district manager at Boston but now will head the company's Washington, D. C., government office.

Fort has been with the company since 1923, holding sales positions in Albany, New York, and Pittsburgh. He was named manager of central station sales in 1943 and manager of the apparatus sales department, the post he now holds, in 1949.

Loomis, who has been manager of the Westinghouse Middle Atlantic district since 1931, joined the company in 1914 as a graduate student at the East Pittsburgh Works and from 1915 to 1931 was in New York sales.

McLeod has been with Westinghouse since 1925. He held sales positions in the company's offices in Houston and San Antonio, Tex., Wichita, Kan., and Memphis, Tenn., before being assigned to the St. Louis office in 1939 as central station division manager. He was appointed Southwestern district manager in 1946.

Lynde, who will head the company's government office at Washington, has been manager of the New England district at Boston since 1946. He joined Westinghouse at East Pittsburgh in 1920 and since then has served in the New York office and at Boston, where he has been stationed since 1927.

•

McAfee, White to Head New Electric Energy, Inc

(*See Front Cover*)

J. W. McAfee, president of Union Electric Co of Missouri, has been named president of Electric Energy, Inc, formed by five utilities to serve the Atomic Energy Commission's scheduled plant near Paducah, Ky. (EW, Dec. 18, 1950, p 73).

Turner White, Jr, Union Electric's superintendent of construction, will be the operating head of the new company as vice president. Edgar H. Dixon, president of Middle South Utilities, Inc, was elected secretary-treasurer of the corporation and E. J. Shapiro, of Union Electric, assistant secretary.

An operating committee with R. E. Moody, Union Electric executive vice president, as chairman will confer with White. Other committee members are Allen Van Wyck, president of Illinois Power Co, and Marshall S. Luthringer, president of Central Illinois Public Service Co.

A lawyer, McAfee has been president of Union Electric since 1941. He first engaged in law practice with Holland, Rutledge & Lashley in St. Louis. From 1934 to 1937 he served as circuit judge and then joined the firm of Igoe, Carroll, Keefe & McAfee, counsel for Union Electric. He is a past president of the Association of Edison Illuminating Companies.

White started with the Los Angeles

(*Continued on page* 27)

I'm an "inhibited" character!

...and that's good!

BECAUSE "Inhibitol", my inhibited transformer oil, satisfactorily performs its functions far longer without maintenance than any non-inhibited transformer oil. This is the result of the action of an inhibitor which retards

(1) oxidation,
(2) acid formation which attacks insulation, and
(3) formation of sludge which slows heat transfer

Add this to my advanced design, which guarantees superior performance even *without* "Inhibitol", and you'll know why I say, "It's good to be an inhibited character" . . . *and at no extra cost!*

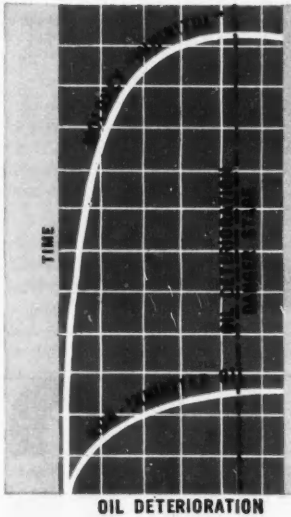


Chart shows result of comparative test of non-inhibited transformer oil and Moloney "Inhibitol". The greater resistance to deterioration obtained with "Inhibitol" results from the use of an inhibitor. The ability of the transformer to resist electrical failure is maintained at a high level for a greater length of time than is obtainable with any non-inhibited transformer oil.

ALSO "VINYLTEX"...

In case you haven't noticed, I'm looking better these days. That's because I'm now covered with baked-on "Vinyltex", the remarkable new vinyl base paint. This is now standard, *at no extra cost either,* to protect me from scratching, scraping or chipping. And as for weather resistance... why "Vinyltex" rivals porcelain in durability, yet is flexible and not brittle.

Send for Bulletin H-305

MOLONEY ELECTRIC COMPANY

Sales offices in all principal cities

FACTORIES AT ST. LOUIS, MISSOURI AND TORONTO, ONTARIO, CANADA

PAPER INSULATED CABLE

For outstanding, uninterrupted, dependable service . . . ROEBLING!

EXPERIENCE SHOWS you'll get maximum economy by putting circuits underground with Roebling Paper Insulated Lead Encased Cables. This immediately does away with the expensive maintenance of overhead lines. And Roebling cables . . . entirely produced in Roebling plants to the most exacting specifications... are your assurance of unsurpassed performance and low-cost service.

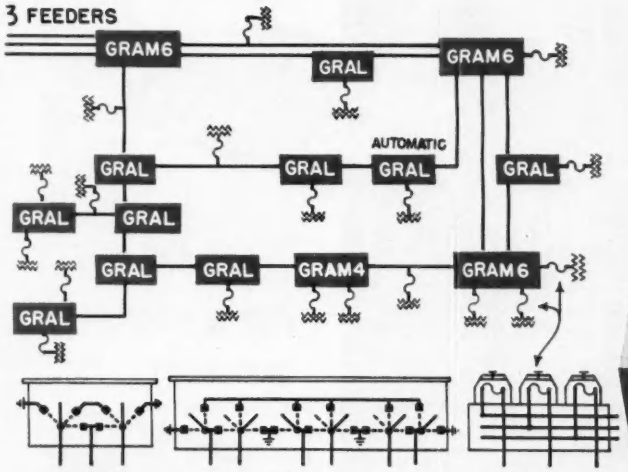
Roebling Shielded Type H is a foremost selection for 3-phase grounded neutral circuits from 13 to 33 kv. It is made in single and multiple conductor construction, in regular and Compack strand (round or sector). Where the cable will be exposed to electrolysis or corrosion, the conventional lead sheathing can be given an outer non-metallic protective jacket of ROESHEATH.

Large quantities of Roebling's complete electrical wire and cable line are required in the national rearmament program. The Roebling organization and distributors will, however, do everything possible to meet your delivery requirements. John A. Roebling's Sons Company, Trenton 2, New Jersey.

ROEBLING

Atlanta, 934 Avon Ave ★ **Boston,** 51 Sleeper St ★ **Chicago,** 5525 W. Roosevelt Rd ★ **Cincinnati,** 3253 Fredonia Ave ★ **Cleveland,** 701 St. Clair Ave, N.E. ★ **Denver,** 4801 Jackson St ★ **Houston,** 6216 Navigation Blvd ★ **Los Angeles,** 216 S. Alameda St ★ **New York,** 19 Rector St ★ **Odessa, Texas,** 1920 E. 2nd St ★ **Philadelphia,** 230 Vine St ★ **San Francisco,** 1740 17th St ★ **Seattle,** 900 1st Ave, S. ★ **Tulsa,** 321 N. Cheyenne St

Here's How a State Institution Uses G & W Equipment For a COMPLETE PRIMARY DISTRIBUTION SYSTEM



"GRAL" Load Break Oil Switch

Load fed from either side—or feeder looped through with or without load connected with ground position for each feeder.

"GRAM" Load Break Oil Switch

Three feeders looped through or interconnected in any arrangement 6 way with continuous bus and ground position for each set of links.

"FCBX" Fuse-Switch Box

Fuse protection for individual loads with convenient load break oil switching—used separately or attached to "GRAL" switches.

G & W load break oil switches, automatic transfer mechanisms, fuse-switch boxes, and splice boxes have been specified throughout this complete primary distribution system at a large state institution. Equipment cost was held to a minimum with no sacrifice in efficiency by the use of G & W sectionalizing equipment.

Transformers in 20 load areas are supplied by a network operating at 4160 volts delta. Type "RA" load break oil switches permit isolation of any area and rapid interconnection of loop feeders in case of failure at any point in the system. Any one of the 20 load areas can be isolated without interrupting service to the other sections of the system—and all areas can be supplied while only one of the incoming feeders remains energized. An automatic transfer mechanism is used at the main building vault to assure rapid connection to an alternate feeder if the normal source fails.

Individual loads are supplied through Type "FCBX" fuse-switch boxes which provide a convenient means of disconnection under load in addition to short circuit protection.

Let G & W engineers or engineering representatives show you how G & W equipment will help solve your distribution problems.

Write for Bulletin H49, a discussion of Primary Cable System Flexibility.

Use G & W Cable Accessories for
TERMINATING
FUSING—SWITCHING
SPLICING—CONNECTING

POTHEADS

Trouble-Free Cable Terminations

Capnut Style Disconnecting Straight Through

Write for Bulletin AB51 Type "ST-SODERTITE"

Write for Bulletin AA50

OIL FUSE CUTOUTS

CABLE BOXES

Air or Oil Filled

Fuses, Links or Direct Connection

Many Sizes, Styles, Ratings

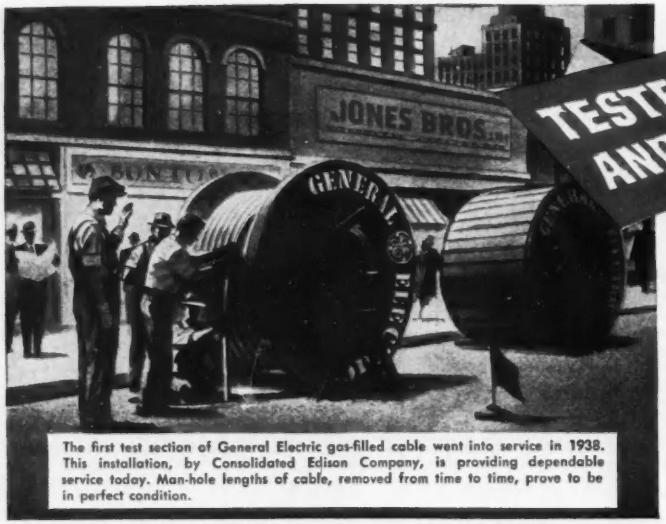
UNIT SPLICING KITS

G&W ELECTRIC SPECIALTY COMPANY

7780 DANTE AVENUE • CHICAGO 19, ILLINOIS, U.S.A.

Representatives in principal cities. In Canada, Powerlite Devices, Ltd., Toronto

GAS-FILLED CABLE



The first test section of General Electric gas-filled cable went into service in 1938. This installation, by Consolidated Edison Company, is providing dependable service today. Man-hole lengths of cable, removed from time to time, prove to be in perfect condition.

. . . by more than 1,000,000 feet now in successful operation!

Low-pressure gas-filled cable—From 10 to 15 lb per sq in.—three conductors, three gas channels, with lead sheath. For 10 to 46 kv operation.

Medium-pressure gas-filled cable—Approximately 45 lb per sq in.—three conductors, three gas channels, and reinforced lead sheath. For voltages above 46 kv.

High-pressure gas-filled cable—Pressures to 200 lbs per sq in.—single conductor, with reinforced, double lead sheath and center gas channel. For operation at 69 kv and above.

Right! Today, over a million feet of General Electric gas-filled cable are in service, with never a failure due to inherent causes.

From the first 5000-foot test section installed in 1938 to a recently-completed installation of more than 40,000 feet, G-E gas-filled cable has operated to the complete satisfaction of its users.

Experience proves conclusively that the stable insulating and impregnating compound used in General Electric gas-filled cable is not affected by the presence of nitrogen gas, limited amounts of oxygen, or even mild ionization. Tests on laboratory samples and on cables in actual service show no measurable deterioration. Even after years of normal use, lengths of cable removed from service proved to be in perfect physical and operating condition.

If you would like to have the advantages of self-supervision and dependability for your high-voltage transmission and distribution circuits, choose General Electric gas-filled cable.

For complete information on the many features of gas-filled cable, as well as operating and performance data, get your free copy of the booklet, *G-E Gas-filled Cable*. Write to Section W19-227, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

You can put your confidence in—

GENERAL ELECTRIC

News About People

(*Continued from page* 22)

(Calif.) Department of Water & Power. Later he worked for Texas Co at Long Beach. He went to Union Electric in 1930 as construction supervisor in a modernization project at the Page Avenue substation. In December, 1930, he became superintendent of the Osage power plant at Bagnell Dam, and in 1945 he was made system superintendent of hydroelectric plants. He has been construction superintendent since 1947.

TURNER WHITE, JR

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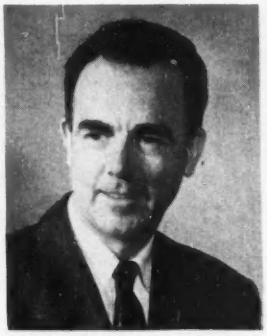
William C. Pirie has been appointed public relations manager for the National Association of Electrical Distributors, succeeding **Albert Pfaltz,** who has resigned to do planning, writing, and production in the public relations and promotion fields. Pirie has been business manager of "Electrical Wholesaling" and "Electrical Construction and Maintenance" magazines. Before that he was assistant advertising manager of Sylvania Electric Products, Inc, and then managing editor of "Electrical Wholesaling."

John Verde has been appointed superintendent of electrical distribution for the Norwich (Conn.) gas and electrical department. He succeeds **N. C. Pierce,** who has retired after 32 years of service. Verde has been with the department since 1930. Before that he was a meter tester in the Waterbury division of Connecticut Light & Power Co. Pierce worked for General Electric Co and for Wisconsin Power Co as chief electrician and later superintendent of one of its hydro plants before going to Norwich.

Roebling Makes Maloney Wire Division Sales Head

John A. Roebling's Sons Co, Trenton, N. J., has appointed two new sales executives in its electrical wire division. Howard E. Maloney has been made manager of sales of the division and Frank T. Craven assistant manager of sales.

Maloney has been associated with Roebling for the past nine years, starting as a salesman in the Seattle district office. In 1949 he was transferred to the main sales office in Trenton as assistant manager.



H. E. MALONEY

For the last four years Craven has been in charge of sales of coils, magnet wire, and bare and weatherproof products. He joined Roebling in 1936 as a salesman in the Philadelphia district office.

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L. S. Peterman, director of power development in the Los Angeles area for Southern California Edison Co, has been appointed Santa Paula district manager. He succeeds L. S. Lotheridge, retiring after 45 years with the company. Lotheridge joined the old Ventura County Power Co as a collector in 1906. He has been Santa Paula district manager since 1920.

Philip Torchio, Jr, has been appointed assistant general manager of Ohio Power Co. He had been assistant to the vice president and general manager since April, 1949. The year before that he was assistant to the operating vice president of American Gas & Electric Service Corp, New York City. Before joining AG&E he spent 16 years with Consolidated Edison Co of New York, Inc, in the generating, distribution, sales, purchasing, and engineering departments.

OBITUARY

Charles H. Tenney

Charles H. Tenney, 82, New England utility executive and financier, died in Springfield, Mass., Feb. 7. He formerly headed the "Tenney group" of utilities, later known as the North Boston lighting properties, now part of the New England Electric System.

Tenney's business career began when at the age of 18 he became an office boy in the Chicago office of N. W. Harris & Co, a bond firm which he later represented in New York and Connecticut. In 1897 he became a partner in Thompson, Tenney & Crawford, New York and Boston investment bankers.

The partnership was dissolved when he entered the utility field in 1900 as president of Malden (Mass.) Electric Light Co. In 1904 Tenney was chosen president of Springfield Gas Light Co. Other companies were added later. After NEES took over, Tenney continued as president or chairman of the electric companies at Fitchburg, Mass.; Exeter, N. H.; Concord, N. H.; and Rockland, N. Y.; and gas companies at Springfield and Brockton, Mass.

During World War I Tenney was chief of finance of the Army Ordnance Department and organized and headed the Army's Ordnance Salvage Board. He received the Distinguished Service Medal. At the time of his death he was chairman of the Ordnance Board of the Boston Ordnance District.

•

Louis R. Wallis, 82, former head of the commercial bureau of Boston Edison Co, died at Clearwater, Fla., Jan. 31. He was manager of Woburn (Mass.) Light, Heat & Power Co until its acquisition by Boston Edison. He retired in 1938 after a long career as an industrial power sales executive.

L. P. Hite, power coordinator for western Kentucky properties of Kentucky Utilities Co, died in Paducah Jan. 31. He was western division manager for nearly 20 years.

MANUFACTURERS and MARKETS

FOR SAFETY RECORD of only three disabling injuries in nearly 1,750,000 operating manhours, Pennsylvania Transformer Co recently received a special award from Employers' Mutual Liability Insurance Co of Wisconsin. Accident frequency rate for the year ended Oct. 30 was 1.7, a record low for the industry. W. E. Kerr, president, received an engraved bronze plaque from H. J. Lynch, insurance company safety engineer. On hand for the ceremony were, l to r, front row, Mary Monheim, plant nurse; Lynch; Kerr; Mike Lesson and Pete Cassidy, union representatives; back row, S. H. Dickson, treasurer; Ollie Hope, plant superintendent; Thomas Brady, safety director; and Fred Huber, personnel director of Penn Transformer

Ceilings on DO's Aluminum Makers Must Take Boosted 10-20% by NPA

There was bad news for all aluminum consumers in a little noticed order issued recently by the National Production Authority. This regulation upped the quantities of aluminum for which producers and fabricators must accept rated (DO) orders by 10 to 20% for specific shapes and forms.

It was going to be much harder to take than the simultaneous ban on use of the metal in the manufacture of 200-odd end products, which was tough on only admittedly nonessential uses of aluminum—and not all them.

The new ceiling on the aluminum "take" for DO's is effective Feb. 1. It takes most of the realism out of both the new ban on specific aluminum products and the earlier NPA cutback on use of aluminum for civilian purposes to 75% of last year's levels in February and 65% in March.

Producers and fabricators now must be ready to take rated orders for as much as 45% of their anticipated total tonnage of production in any month. This is 20% more than they have been required to accept since last October, when NPA issued its first M-5 order limiting DO's for aluminum. Obviously neither the 25% general cutback of civilian use in February nor next month's 35% slash will reduce the pressure of nonmilitary demands sufficiently for any producer or fabricator who gets DO's for 45% of his output.

Nor will the ban on specific items, which doesn't take effect until April 1, anyhow, be much help. Metals men pointed out that the banned list concentrates largely on ornamental and decorative uses, small consumers.

The new ceilings on forms and shapes looked just about as tough as the tonnage limitations to producers and fabricators. They were: Sheet, plate, circles, and blanks, 40%; extrusions and tubing, 45%; rolled shapes, 30%; rod, bar, wire, and cable, 35%; forgings and pressings, 60%; castings, 40%; secondary ingots, 45%; and other mill products, 40%.

NPA gave manufacturers the usual advance notice: They can keep on working on items on the banned list which they have started on or before March 31 and can complete by May 31. The order averts the snafu which somehow crept into NPA's ban on copper items. The copper order forbade the use of some banned copper items after April 30, even though production could continue until that date. All aluminum items completed by May 31 may be used.

Metal Prices
Feb. 12, 1951

COPPER, Conn. V., lb.	$ .24½
LEAD, N. Y., lb.	.17
ZINC, prime Western, E. St. Louis, lb.	.17½
TIN, Straits qual, N. Y., lb.	1.82½
ALUMINUM, ingot, base price	.19
NICKEL, base price	.50½
STEEL, billets, Pitts., ton	56.00
STEEL, scrap, No. 1 heavy, Pitts., ton	45.00

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Arizona-Nevada—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars Phoenix, Ariz., one lot equipment for selectivity calling the sub-stations and power plant of Region 3 power dispatching system, for Davis Dam Proj., Spec. DS-3311. L. N. McClellan, ch. engr.

Illinois and Missouri—Union Electric Company of Missouri, Illinois Power Co. and Central Illinois Public Service c/o Union Electric Co. of Missouri, 315 N. 12 St. Louis 1, Mo., power transmission line to connect St. Louis, Mo. with new Electric Energy, Inc., power plant near Joppa, Ill. incl. line from St. Louis, Mo. and West Frankfort, Ill. and also between West Frankfort and new plant at Joppa, Ill. **$10,000,000.**

Ill., Lemont—Public Service Co. of Northern Illinois, 72 W. Adams St., Chicago, Zone 3, 1,000,000 kw. power plant first unit 150,000 kw., on 200 acre site along ship canal, near here. **$1,000,000.**

Iowa—Iowa Power & Light Co., 312 6 Ave., Des Moines, Ia., main line extens., transformers, misc. equip. in central and southwest Iowa, incl. Des Moines and Council Bluffs, **$2,000,000;** addnl. relays, transformers and controls, Des Moines and Clarinda, **$379,700;** rebuild transmission line, Red Oak to Griswold, **$93,400;** heavy transmission line, Council Bluffs to Glenwood, **$311,000.** F. A. Beatty, c/o owner, engr.—vice pres. in charge operations.

Ky., Central City—Kentucky Utilities Co., First National Bank Bldg., Louisville, electrical generating plant adn., 75,000 kw. coal fired units. **$10,000,000.**

Ky., Tyrone—Kentucky Utilities Co., First National Bank Bldg., Louisville, electrical generating plant adn., incl. 75,000 kw. coal fired generator units. **$9,000,000.** Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., consult. engrs.

Mich., Bay City—City, George MacPhail, mgr., Contr. 2, electric sub-station, transformer tower and accessories, Saginaw and Tenth Sts. Plans deposit $10. Ayres, Lewis, Norris & May, 506 Wolverine Bldg., Ann Arbor, engrs.

Missouri—Black River Electric Co-operative, Ironton, 345.5 mi. rural distr. lines, 6.5 mi. transmission lines, etc. Reynolds Co. **$970,000.** Frank Horton & Co., Lamar, consult. engrs.

Missouri—Southwest Electric Co-operative, Robert H. Cochran, mgr., Bolivar, addl. rural distr. lines, sys. imprvs. in Benton, Camden Dallas, Greene, Hickory and Pope Counties. **$975,000.**

N. Y., Port Washington—Dist. P. Wks., Third Naval Dist., 90 Church St., New York, 7, N. Y., electrical distribution system alterations in Engineering Bldg., Sands Point.

Neb., Alma—City, Alma, electric plant extension. $73,450. Alt. $85,050. Harold Hoskins & Assoc., 231 N. 11 St., Lincoln, engrs.

N. Y., Olean—McGraw Electric Co., Elgin, Ill., power line distr. equip. plant, **$500,000.**

Okla., Pryor—City, electric plant. **$270,000.** W. R. Holway & Assoc., 302 E. 18 St., Tulsa, consult. engrs.

Washington—Bonneville Power Admin., P. O. Box 3537, Portland, Ore.

230-kv transmission line, Columbia-Olympia line No. 4, **$5,479,000.**

230-kv transmission line, Goldbar-Covington, **$1,437,000.**

230-kv transmission line, Grand Coulee-Snohomish line No. 2, **$92,000.**

230-kv transmision line, Covington-Olympia, **$734,000.**

230-kv transmission line, Snohomish-Arlington, **$262,000.**

230-kv transmission line, Snohomish-Bothell, **$110,000.**

115-kv transmission line, Raymond-Aberdeen; **$81,000.**

115-kv transmission line, Tacoma loop, **$113,000.**

115-kv transmission line, Olympia-Shelton-Port Angeles, **$23,000.**

115-kv transmission line, Allyn-Kitsap, **$625,000.**

115-kv transmission line, Shelton-Allyn, **$90,000.**

Switching station, Goldbar, **$43,000.**

Switching station, Kitsap, **$464,000.**

Olympia terminal and auto transformer addns., **$657,000.**

Covington terminal and sub-station adns., **$171,000.**

Sub-station adn., Shelton, **$74,000.**

Sub-station adn., Aberdeen, **$298,000.**

System reactive facilities, Covington, **$365,000.**

System reactive facilities, Shelton, **$71,000.**

System reactive facilities, Snohomish, **$162,000.**

South Elma sub-station, **$205,000.**

Tacoma terminal, **$475,000.**

Cosmoplis sub-station conversion, **$62,000.**

Communications, Grand Coulee-Snohomish, **$14,000.**

Communications, Covington - Olympia, **$20,000.**

Transmission line, Grand Coulee No. 5, **$793,000.**

Transmission line, Seven Mile-Four Lakes, **$112,000.**

Transmission lines, Hot Springs (Mont.) and Spokane, **$5,916,000.**

Spokane terminal, **$113,000.**

Sub-station adn., Spokane, **$848,000.**

Sub-station adn., Metaline Falls, **$28,000.**

Sub-station addn., Four Lakes, **$9,000.**

Chewelah sub-station, **$17,000.**

Seven Mile switching stations, **$88,000.**

230-kv transmission line, Grand Coulee-Midway No. 3, **$1,282,000.**

230-kv transmission line, Grand Coulee-Columbia No. 4, **$870,000.**

230-kv transmission line, Grand Coulee-Spokane, No. 5, **$1,760,000.**

115-kv transmission line, Columbia-Ellensburg, **$113,000.**

115-kv transmission line, Tonasket-Republic, **$237,000.**

115-kv transmission line, Columbia-Keokuk, **$110,000.**

115-kv transmission line, Ephrata-Soap Lake, **$112,000.**

Sub-station, Soap Lake, **$25,000.**

Ephrata adn., **$50,000.**

Sub-station, Quincy transfs, **$98,000.**

Sub-station, Rocky Ford, **$664,000.**

Sub-station, Tonasket, **$78,000.**

Sub-station, Columbia, **$72,000.**

Communications, Grand Coulee-Midway, **$38,000.**

Communications, Grand Coulee-Columbia, **$4,000.**

Communications, Columbia-Ellensburg, **$12,000.**

Series capacitors, Grand Coulee-Midway, **$132,000.**

Conductor change on Grand Coulee-Midway, **$1,143,000.**

Conductor change on Grand Coulee-Columbia, **$253,000.**

Grand Coulee auto transformers, **$583,000.**

Reactive facilities at Columbia sub-station, **$58,000.**

Moses Lake transformers, **$43,000**

Convert Vancouver-St. Johns transmission line to 230-kv, **$638,000.**

Vancouver terminal station, **$142,000.**

Road surf. and relocation of facilities, Vancouver, **$200,000.**

North Bonneville, site imprvs., **$40,000.**

Wyoming—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Lovell, Wyo., auto-transformers, lightning arresters, distribution transformers, circuit breakers, disconnecting switches, grounding blades, disconnecting fuses, etc. for Lovell Sub-station, Transmission Div., Missouri River Basin Proj. Spec. DS-3312. L. N. McClellan, ch. engr.

MANUFACTURING BRIEFS

Eleven persons were killed and more than 60 injured in an explosion at the Minnesota Mining & Manufacturing Co plant at St. Paul Feb. 8. The six-story concrete and steel building was severely damaged. The blast was attributed to an explosion of butane gas used in the treatment of abrasive minerals.

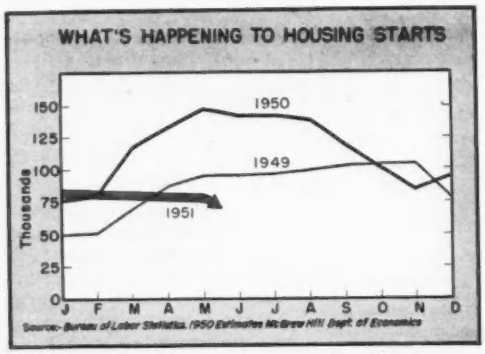
Reliance Electric & Engineering (Canada) Ltd, Welland, has been established as successor to Commonwealth Electric Corp, Ltd. Control of this company, which makes alternating current motors and transformers, was acquired by Reliance Electric & Engineering Co, Cleveland, last September (EW, Oct 2, p 28). Transformers and alternating current motors will continue to be sold under the trade name Commonwealth. In addition the plant will make three Reliance lines, all-electric adjustable-speed drives for alternating current circuits, engineered drives, and direct current motors. J. W. Corey, president of the American firm, was elected president of Canadian Reliance. Vice presidents are J. N. Stanley, a former officer of Commonwealth, and G. E. Bevis, former Reliance district sales manager in Syracuse.

Westinghouse Electric Corp will begin construction soon of a new office, warehouse, and manufacturing and repair plant in Richmond, Va. The building will consolidate all Westinghouse activities there except those of Westinghouse Electric Supply Co. Completion of the 27,750-sq-ft brick and glass building is scheduled early in 1952.

Corning Glass Works, Albion, Mich., has put a new television tube plant into operation at Albion. Principal products are large-sized rectangular bulbs and tinted face plates.

Atomic energy, jet propulsion, television, and other new scientific developments are explained in a comic-type picture book recently published by the School Service Department of Westinghouse Electric Corp. The book was prepared for use as a teaching aid in junior and senior high school science and social science classes.

Electrical Business Outlook



NEW HOMEBUILDING is still at a relatively high level despite the drop from last summer's peak. Starts may total over 800,000 for 1951, down from the 1.4 million in 1950

You Can't Keep Construction Down

Despite talk about restrictions, the construction boom is rolling merrily on. Later this year, materials shortages may slow things down. But for the next few months, the builders will still be mighty busy.

Look at the way housing is holding up. A short time ago, homebuilders thought they'd be lucky to get 600,000 new units up in 1951. Now the government has set a goal of 800,000 to 850,000. And it's putting cash on the line to see that these units are built.

On Jan. 1, government agencies had guaranteed the construction mortgages for 330,000 new housing units, all to go up in the near future. Add an equal volume of conventional financing plus at least 60,000 public housing units—and you have nearly 700,000 new homes already approved for construction in 1951.

Most Homes Escape Regulation X

Most of these homes aren't covered by Regulation "X", which specifies tough mortgage terms on sales of completed homes. They are either too small to be covered by the regulation, or they were approved before its effective date. Some high cost building will be canceled because potential buyers can't get VA or FHA guarantees for the full amount of the mortgages. But this won't knock out more than 200,000 starts.

That leaves 500,000 homes which seem dead sure to be started in the first half of 1951—barring new and drastic restrictions on materials. Unless building falls flat on its face in the second half, the year's total can hardly be under 800,000 units.

If the defense program is expanded, government agencies might let housing drop in the second half. But as things stand, they want that 800,000 goal. If a bad drop seems imminent, regulations will be relaxed. Or government will move fast on defense housing. Congress now has the bills to provide easy-money backing for future defense projects.

A Fantastic Boom in Industrial Construction

Meanwhile, there's a fantastic boom getting started in industrial construction. For the first five weeks of 1951, contract awards ran six times the 1950 figure (chart below). As a result, total contract awards are 40% ahead of last year, despite declines in the residential and commercial fields.

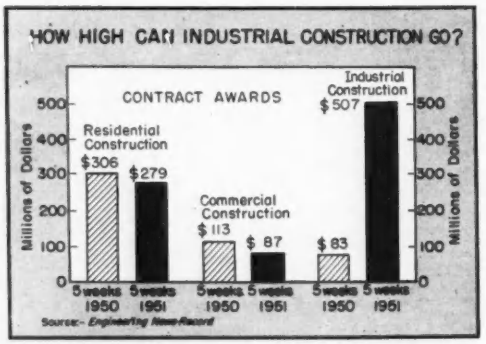
It's not clear how long industrial construction projects can pile up at this rate. The government is giving a green light to expansion of facilities which produce basic raw materials, like steel, aluminum, rubber, and rayon yarn. But NPA officials have begun talking about restrictions on less essential work.

For example, we now have more metalworking capacity, in total, than capacity for producing basic metals. So later this year, a ban may be placed on the construction of new metalworking plants, except where there's a special need for defense work. In general, NPA will favor conversion of existing plants.

But—just as in housing—the boom can't be torpedoed overnight. There's a tremendous amount of industrial building already underway that will take months to finish. No matter what happens later on, factory buildings of all kinds will multiply in the first part of 1951.

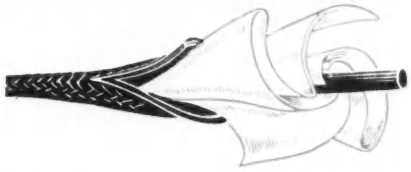
There's still more to the construction picture. In the public works field, many projects are being postponed for lack of materials. But the types which matter most to utilities—hospitals, schools, and public housing—are all being pushed ahead.

And finally, there's the military program. It includes over $5 billion of construction in 1951 and early '52—most of it for air fields. All in all, it won't be a bad construction year.



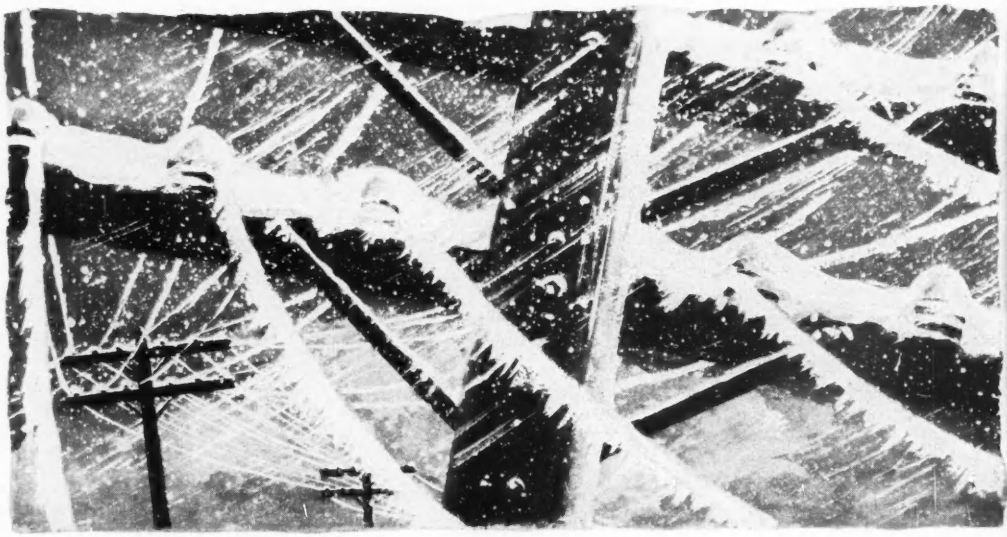
NEW INDUSTRIAL CONSTRUCTION now being planned more than offsets declines in residential and commercial building. But materials shortages may soon limit such construction

install Duraline...



DURALINE* gives longer, better service because of its unique construction — a continuous, interlocked fibrous sheath, thoroughly impregnated with genuine URC saturants, then covered with URC finishers.

and forget about **this** ↓



DURALINE provides finest weatherproof performance . . . keeps moisture out . . . won't festoon . . . gives added protection against damage by foreign objects.

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Your nearest Anaconda Sales Office has full details on Duraline with copper, Copperweld or aluminum conductor. Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York.

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the right cable for the job

ANACONDA® WIRE AND CABLE

ALLIS-CHALMERS

POLE-TYPE

5/8% STEP REGULATOR

Why Lose $4 per Customer per Year?

LOW VOLTAGE CAN COST YOU THAT OR MORE!

OPERATORS WHO LOOK at 105v or 110v as *"adequate"* for feeders are losing from $4 to $8 annual revenue for every customer. Now that most appliances are rated 120v instead of 110v, you can lose many thousands of dollars if you permit voltage to stay at a level that was once considered adequate. It costs money *not* to regulate voltage!

There are several ways to raise voltage and cut revenue losses. Regulators are a common method. But there's a big difference in regulators! For example, a regulator that holds a narrow 2 volt band can maintain average voltage 1 volt higher than a regulator holding a 4 volt band.

Band width is therefore the real way to judge a regulator. Allis-Chalmers pole type step regulator is the only pole type step regulator on the market today that holds a 2 volt band.

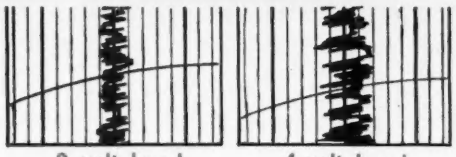
The band width advantage can be used in any one of these three ways:

1. You can use it to increase revenue.
2. You can use it to increase load-carrying capacity.
3. You can use it to extend feeder length.

Hundreds of these regulators are already in use. Find out what the narrow band width of Allis-Chalmers pole type step regulators can mean on your lines. Call your nearby Allis-Chalmers Sales Office for the complete story. A-3181

ALLIS-CHALMERS, 932A SO. 70 ST.
MILWAUKEE, WIS.

Judge a Regulator by the Band Width It Holds!



2 volt band 4 volt band

The Allis-Chalmers pole type regulator is the only pole type step regulator that can hold a narrow 2 volt band. Use the band width advantage of this regulator to hold higher average voltage. Get quicker return on dollars invested in regulation.

ALLIS-CHALMERS

Originators of 5/8% Step Regulation

A-C ALLIS-CHALMERS